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TASKS FOR FAMINE RELIEF WORKERS.

TASKS FOR FAMINE RELIEF WORKERS.

In accordance with paragraph 15 of Revenue Department's Resolution No. 5133, dated 10th December 1896, the following tables have been drawn up, showing the task which should exacted from each man, woman or child on relief works under sections 62 to 66 of the Famine Code.

The figures given in the tables are based on the current average rates paid for earthwork in North Bihar. Thus in table No. I, which specifies the amount to be done when the excavation is in soft soil, such as sandy loam or sand, the number of cubic feet of earthwork which an able-bodied man of class A must do to earn his daily wage is shown to be 139 for a depth of cutting up to 3 feet with a lead not exceeding 50 feet. This number is arrived at as follows:—

The rate ordinarily paid by contractors for such earthwork in North Bihar to 3 feet depth and a lead of 50 feet is Re. 1-2 per 1,000 cubic feet. The current wages for coolies are men 2 annas 6 pies, women 2 annas, and children 1 anna 6 pies per diem; and a gang consisting of 3 men, 3 women and 3 children will excavate and carry 1,000 feet of soft soil in a day. The rate of Re. 1-2 is therefore made up as follows:—

		Rs.	A.	P.
3 men (diggers) at 2 annas 6 pies	=	0	7	6
3 women (carriers) at 2 annas	=	0	6	0
3 children (ditto) at 1 anna 6 pies	=	0	4	6
Total ...		1	2	0

Working out the proportion of the work performed by each of the 9 persons composing the gang, it will be found that each man must do 139 cubic feet, each woman 111 cubic feet and each child 83 cubic feet.

But it is obvious that some deduction must be made from these figures for work performed under the conditions laid down in the Famine Code. Counting and inspecting the coolies, marking out the work for each gang, and measuring it will occupy a considerable time, and will materially lessen the working day. An allowance of two-fifths has therefore been deducted, and the figures shown in tables Nos. 1A, 2A and 3A are three-fifths of the amounts shown in tables Nos. 1, 2 and 3, which should be done if the coolies were working on contract under ordinary conditions. This deduction practically brings the tables of tasks for relief workers into agreement with the tasks prescribed by the Madras Government on famine relief works in that Presidency.

Table No. 2 shows the tasks for medium soil. For 3 feet depth and 50 feet lead the gang to excavate 1,000 cubic feet would ordinarily be composed of five men (diggers) and three women and three children (carriers), the proportion of carriers to diggers being increased for every increase of depth or lead. For very hard soil the gang for 3 feet depth and 50 feet lead would be composed of seven diggers and six carriers (three of the latter being children), and the tasks for such soil are shown in table No. 3.

To ascertain the amount of work which should be assigned to any gang, multiply the figures in the column for the particular conditions of lead and lift by the number of men, women and children, respectively, composing the gang, and add the results. For instance, supposing it is required to allot a task for a gang consisting of three men, five women and three children. Suppose the work to be an embankment, and the soil to be medium, that the excavation is not to exceed 2 feet in depth, but that the embankment has already been raised to a height of 3 feet, and that the gang have to add to its height up to a total of 6 feet from ground level, and suppose the average lead to be 100 feet. Referring to table No. 2A, it will be seen that each man must do 52 cubic feet, each woman 41 cubic feet, and each child 31 cubic feet. The task to be allotted to the gang will therefore be—

	C. ft.
3 × 52	= 156
5 × 41	= 205
3 × 31	= 93
Total ...	454

The tables are for coolies of class A of section 62, Famine Code.

Recent experience in the North-Western Provinces has shown that in the practical carrying out of famine relief works it is only necessary to prescribe the task which should be performed by diggers. The task which each digger can do in the varying conditions of soil may be put thus :—

Excavation only. Task for Diggers (men).

Soil.	Cubic feet per diem.			Remarks.
	On contract. Full.	Under famine conditions.		
		Full.	Low.	
1	2	3	4	5
Soft or sand ...	330	200	170	When women are employed as diggers, they should do two-thirds of the task of a man.
Medium	200	130	100	
Hard	143	85	55	

J. G. H. Glass,
Chief Engineer.

ORDINARY CONTRACT WORK.

TABLE No. 1, SOFT SOIL OR SAND.

NATURE OF SOIL.	Lead.	ADULT MALES. Depth of cutting or height of embankment.							ADULT FEMALES. Depth of cutting or height of embankment.							CHILDREN OF 14 YEARS. Depth of cutting or height of embankment.							REMARKS.
		0′—3′.	3′—6′.	6′—9′.	9′—12′.	12′—15′.	15′—18′.	18′—21′.	0′—3′.	3′—6′.	6′—9′.	9′—12′.	12′—15′.	15′—18′.	18′—21′.	0′—3′.	3′—6′.	6′—9′.	9′—12′.	12′—15′.	15′—18′.	18′—21′.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Soft soil or sand.	50	139	119	104	93	83	76	69	111	95	83	74	67	61	56	83	71	63	56	50	45	42	*Data on which tables have been made.*
	100	119	104	93	83	76	69	64	95	83	74	67	61	56	51	71	63	56	50	45	42	39	Labour required for 1,000 cubic feet earthwork up to 3′ depth and 50′ lead—
	150	104	93	83	76	69	64	60	83	74	67	61	56	51	47	63	56	50	45	42	39	36	Rs. A. P.
	200	93	83	76	69	64	60	56	74	67	61	56	51	47	44	56	50	45	42	39	36	33	3 Diggers at 2 annas 6 pies each 0 7 6
	250	83	76	69	64	60	56	52	67	61	56	51	47	44	41	50	45	42	39	36	33	31	3 Women (carriers) at 2 annas each 0 6 0
	300	76	69	64	60	56	52	49	61	56	51	47	44	41	39	45	42	39	36	33	31	29	3 Boys (carriers) at 1 anna 6 pies each ... 0 4 6
	350	69	64	60	56	52	49	46	56	51	47	44	41	39	37	42	39	36	33	31	29	27	Total ... 1 2 0
	400	64	60	56	52	49	46	44	51	47	44	41	39	37	35	39	36	33	31	29	27	26	
	450	60	56	52	49	46	44	42	47	44	41	39	37	35	33	36	33	31	29	27	26	25	*N.B.*—Three annas added for every extra 50′ lead or every 3′ depth.
	500	56	52	49	46	44	42	40	44	41	39	37	35	33	31	33	31	29	27	26	25	24	
	550	52	49	46	44	42	40	38	41	39	37	35	33	31	30	31	29	27	26	25	24	23	
	600	49	46	44	42	40	38	36	39	37	35	33	31	30	29	29	27	26	25	24	23	22	
	650	46	44	42	40	38	36	34·5	37	35	33	31	30	29	28	27	26	25	24	23	22	21	
	700	44	42	40	38	36	34·5	33	35	33	31	30	29	28	27	26	25	24	23	22	21	20	

ORDINARY CONTRACT WORK.

TABLE No. 2, MEDIUM SOIL.

NATURE OF SOIL.	Lead.	ADULT MALES. Depth of cutting or height of embankment.							ADULT FEMALES. Depth of cutting or height of embankment.							CHILDREN OF 14 YEARS. Depth of cutting or height of embankment.							REMARKS.
		0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Medium soil.	50	109	96	86	78	71	66	61	87	77	69	62	57	53	49	65	58	52	47	43	39	36	
	100	96	86	78	71	66	61	57	77	69	62	57	53	49	45	58	52	47	43	39	36	34	
	150	86	78	71	66	61	57	53	69	62	57	53	49	45	42	52	47	43	39	36	34	32	
	200	78	71	66	61	57	53	50	62	57	53	49	45	42	40	47	43	39	36	34	32	30	
	250	71	66	61	57	53	50	47	57	53	49	45	42	40	38	43	39	36	34	32	30	28	
	300	66	61	57	53	50	47	45	53	49	45	42	40	38	36	39	36	34	32	30	28	26	
	350	61	57	53	50	47	45	43	49	45	42	40	38	36	34	36	34	32	30	28	26	25	
	400	57	53	50	47	45	43	41	45	42	40	38	36	34	32	34	32	30	28	26	25	24	
	450	53	50	47	45	43	41	39	42	40	38	36	34	32	30	32	30	28	26	25	24	23	
	500	50	47	45	43	41	39	37	40	38	36	34	32	30	29	30	28	26	25	24	23	22	
	550	47	45	43	41	39	37	35	38	36	34	32	30	29	28	28	26	25	24	23	22	21	
	600	45	43	41	39	37	35	33	36	34	32	30	29	28	27	26	25	24	23	22	21	20	
	650	43	41	39	37	35	33	32	34	32	30	29	28	27	26	25	24	23	22	21	20	19	
	700	41	39	37	35	33	32	31	32	30	29	28	27	26	25	24	23	22	21	20	19	19	

Data on which tables have been made.

Labour required for 1,000 cubic feet earthwork up to 3 feet depth and 50 feet lead—

	Rs.	A.	P.
5 diggers at 2 annas 6 pies each ...	0	12	6
3 women carriers at 2 annas each...	0	6	0
3 boys ,, at 1 anna 6 pies each...	0	4	6
Total ...	1	7	0

N.B.—Three annas added for every extra 50 feet lead or every 3 feet depth.

ORDINARY CONTRACT WORK.

TABLE No. 3, HARD SOIL.

NATURE OF SOIL.	Lead.	ADULT MALES. Depth of cutting or height of embankment.							ADULT FEMALES. Depth of cutting or height of embankment.							CHILDREN OF 14 YEARS. Depth of cutting or height of embankment.							REMARKS.
		0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Stiff and hard soil.	50	89	81	74	68	63	58	54	71	65	59	54	50	46	43	54	48	44	41	38	35	33	
	100	81	74	68	63	58	54	51	65	59	54	50	46	43	41	48	44	41	38	35	33	31	
	150	74	68	63	58	54	51	48	59	54	50	46	43	41	39	44	41	38	35	33	31	29	
	200	68	63	58	54	51	48	45	54	50	46	43	41	39	37	41	38	35	33	31	29	27	*Data on which tables have been made.*
	250	63	58	54	51	48	45	43	50	46	43	41	39	37	35	38	35	33	31	29	27	26	Labour required for 1,000 cubit feet earthwork up to 3 feet depth and 50 feet lead:—
	300	58	54	51	48	45	43	41	46	43	41	39	37	35	33	35	33	31	29	27	26	25	Rs. A. P.
	350	54	51	48	45	43	41	39	43	41	39	37	35	33	31	33	31	29	27	26	25	24	7 Diggers at 2 annas 6 pies each 1 1 6
	400	51	48	45	43	41	39	37	41	39	37	35	33	31	30	31	29	27	26	25	24	23	3 Women (carriers) at 2 annas each ... 0 6 0
	450	48	45	43	41	39	37	35	39	37	35	33	31	30	29	29	27	26	25	24	23	22	3 Boys (carriers) at 1 anna 6 pies each ... 0 4 6
	500	45	43	41	39	37	35	34	37	35	33	31	30	29	28	27	26	25	24	23	22	21	Total ... 1 12 0
	550	43	41	39	37	35	34	33	35	33	31	30	29	28	27	26	25	24	23	22	21	20	*N.B.*—Three annas added for every 50 feet lead or 3 feet depth extra.
	600	41	39	37	35	34	33	32	33	31	30	29	28	27	26	25	24	23	22	21	20	19	
	650	39	37	35	34	33	32	30	31	30	29	28	27	26	25	24	23	22	21	20	19	18	
	700	37	35	34	33	32	30	29	30	29	28	27	26	25	24	23	22	21	20	19	18	18	

TASKS FOR RELIEF WORKERS.

TABLE No. 1(A), SOFT SOIL OR SAND.

Tables showing the number of cubic feet of earthwork to be performed in one day by coolies of class A under Section 62 of the Famine Code.

NATURE OF SOIL.	Lead.	ADULT MALES. Depth of cutting or height of embankment.							ADULT FEMALES. Depth of cutting or height of embankment.							CHILDREN OF 14 YEARS. Depth of cutting or height of embankment.							REMARKS.
		0'—3'.	3'—6'.	6'—9.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Soft soil or sand.	50	83	71	62	56	50	46	41	67	57	50	44	40	37	34	50	43	38	34	30	27	25	*Data on which tables have been made.*
	100	71	62	56	50	46	41	38	57	50	44	40	37	34	30	43	38	34	30	27	25	23	Labour required for 1,000 cubic feet earthwork up to 3 feet depth and 50 feet lead—
	150	62	56	50	46	41	38	36	50	44	40	37	34	30	28	38	34	30	27	25	23	22	
	200	56	50	46	41	38	36	34	44	40	37	34	30	28	26	34	30	27	25	23	22	20	
	250	50	46	41	38	36	34	31	40	37	34	30	28	26	25	30	27	25	23	22	20	19	
	300	4	41	38	36	34	31	29	37	34	31	28	26	25	23	27	25	23	22	20	19	17	
	350	41	38	36	34	31	29	28	34	31	28	26	25	23	22	25	23	22	20	19	17	16	
	400	38	36	34	31	29	28	26	31	28	26	25	23	22	21	23	22	20	19	17	16	16	
	450	36	34	31	29	28	26	25	28	26	25	23	22	21	20	22	20	19	17	16	16	15	
	500	34	31	29	28	26	25	24	26	25	23	22	21	20	19	20	19	17	16	16	15	14	
	550	31	29	28	26	25	24	23	25	23	22	21	20	19	18	19	17	16	16	15	14	14	
	600	29	28	26	25	24	23	22	23	22	21	20	19	18	17	17	16	16	15	14	14	13	
	650	28	26	25	24	23	22	20·7	22	21	20	19	18	17	17	16	16	15	14	14	13	13	
	700	26	25	24	23	22	20·7	20	21	20	19	18	17	17	16	16	15	14	14	13	13	12	

	Rs.	A.	P.
3 Diggers at 2 annas 6 pies each	0	7	6
3 Women (carriers) at 2 annas each ...	0	6	0
3 Boys (carriers) at 1 anna 6 pies each ...	0	4	6
Total ...	1	2	0

N.B.—Three annas added for every extra 50 feet lead or every 3 feet depth.

TASKS FOR RELIEF WORKERS.

TABLE No. 2 (A), MEDIUM SOIL.

NATURE OF SOIL.	Lead.	ADULT MALES. Depth of cutting or height of embankment.							ADULT FEMALES. Depth of cutting or height of embankment.							CHILDREN OF 14 YEARS. Depth of cutting or height of embankment.						
		0'—3'	3'—6'	6'—9'	9'—12'	12'—15'	15'—18'	18'—21'	0'—3'	3'—6'	6'—9'	9'—12'	12'—15'	15'—18'	18'—21'	0'—3'	3'—6'	6'—9'	9'—12'	12'—15'	15'—18'	18'—21'
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Medium soil.	50	65	58	52	47	43	40	37	52	46	41	37	34	32	29	39	35	31	28	26	23	22
	100	58	52	47	43	40	37	34	46	41	37	34	32	29	27	35	31	28	26	23	22	20
	150	52	47	43	40	37	34	32	41	37	34	32	29	27	25	31	28	26	23	22	20	19
	200	47	43	40	37	34	32	30	37	34	32	29	27	25	24	28	26	23	22	20	19	18
	250	43	40	37	34	32	30	28	34	32	29	27	25	24	23	26	23	22	20	19	18	17
	300	40	37	34	32	30	28	27	32	29	27	25	24	23	22	23	22	20	19	18	17	16
	350	37	34	32	30	28	27	26	29	27	25	24	23	22	20	22	20	19	18	17	16	15
	400	34	32	30	28	27	26	25	27	25	24	23	22	20	19	20	19	18	17	16	15	14
	450	32	30	28	27	26	25	23	25	24	23	22	20	19	18	19	18	17	16	15	14	14
	500	30	28	27	26	25	23	22	24	23	22	20	19	18	17	18	17	16	15	14	14	13
	550	28	27	26	25	23	22	21	23	22	20	19	18	17	17	17	16	15	14	14	13	13
	600	27	26	25	23	22	21	20	22	20	19	18	17	17	16	16	15	14	14	13	13	12
	650	26	25	23	22	21	20	19	20	19	18	17	17	16	16	15	14	14	13	13	12	11
	700	25	23	22	21	20	19	19	19	18	17	17	16	16	15	14	14	13	13	12	11	11

REMARKS.

Data on which tables have been made.

Labour required for 1,000 cubic feet earthwork up to 3 feet depth and 50 feet lead—

	Rs.	A.	P.
5 Diggers at 2 annas 6 pies each	0	12	6
3 Women (carriers) at 2 annas each	0	6	0
3 Boys (carriers) at 1 anna 6 pies each	0	4	6
Total ...	1	7	0

N.B.—Three annas added for every extra 50 feet lead or 3 feet depth.

TASKS FOR RELIEF WORKERS.

TABLE No. 3(A), STIFF AND HARD SOIL.

NATURE OF SOIL.	Lead.	ADULT MALES. Depth of cutting or height of embankment.							ADULT FEMALES. Depth of cutting or height of embankment.							CHILDREN OF 14 YEARS. Depth of cutting or height of embankment.							REMARKS.
		0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	0'—3'.	3'—6'.	6'—9'.	9'—12'.	12'—15'.	15'—18'.	18'—21'.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Stiff and hard soil.	50	53	49	44	41	38	35	32	43	39	35	32	30	28	26	32	29	26	25	23	21	20	*Data on which tables have been made.*
	100	49	44	41	38	35	32	31	39	35	32	30	28	26	25	29	26	25	23	21	20	19	
	150	44	41	38	35	32	31	29	35	32	30	28	26	25	23	26	25	23	21	20	19	17	
	200	41	38	35	32	31	29	27	32	30	28	26	25	23	22	25	23	21	20	19	17	16	
	250	38	35	32	31	29	27	26	30	28	26	25	23	22	21	23	21	20	19	17	16	16	Labour required for 1,000 cubit feet earthwork up to 3 feet depth and 50 feet lead—
	300	35	32	31	29	27	26	25	28	26	25	23	22	21	20	21	20	19	17	16	16	15	Rs. A. P.
	350	32	31	29	27	26	25	23	26	25	23	22	21	20	19	20	19	17	16	16	15	14	7 Diggers at 2 annas 6 pies each 1 1 6
	400	31	29	27	26	25	23	22	25	23	22	21	20	19	18	19	17	16	16	15	14	14	3 Women (carriers) at 2 annas each 0 6 0
	450	29	27	26	25	23	22	21	23	22	21	20	19	18	17	17	16	16	15	14	14	13	3 Boys (carriers) at 1 anna 6 pies each 0 4 6
	500	27	26	25	23	22	21	20	22	21	20	19	18	17	17	16	16	15	14	14	13	13	Total ... 1 12 0
	550	26	25	23	22	21	20	20	21	20	19	18	17	17	16	16	15	14	14	13	13	12	
	600	25	23	22	21	20	20	19	20	19	18	17	17	16	16	15	14	14	13	13	12	12	*N.B.*—Three annas added for every extra 50 feet lead or 3 feet depth.
	650	23	22	21	20	20	19	18	19	18	17	17	16	16	15	14	14	13	13	12	12	12	
	700	22	21	20	20	19	18	17	18	17	17	16	16	15	14	14	13	13	12	12	12	12	

T. N. R.—Reg. No 6235C—500—27-1-97.

To be substituted for the rules and orders previously issued bearing the same date.]

[*Accompaniment to Resolution No. 420M.P.I., dated the 25th January 1897, by the Government of Bengal, Public Works Department.*]

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT.

FAMINE RELIEF WORKS.

THE following rules and orders are issued for the guidance of officers employed on relief works conducted under the provisions of the Famine Code and carried out by the Public Works Department. They generally follow in details the lines laid down in the North-Western Provinces Resolution No. 18P.W., dated Allahabad, the 5th December 1896, but are modified in some important respects especially in regard to the exaction of the task from the gang as a unit to suit local conditions.

By order of the Lieutenant-Governor of Bengal,

J. G. H. GLASS,

Secretary to the Government of Bengal.

CALCUTTA,
The 25th January 1897.

THESE instructions are for guidance in conducting the field relief works under the Famine Code in tracts officially recognised as distressed. They are not applicable to works conducted by the Department of Public Works as ordinary works under article 52, Famine Code, or as test works undertaken in districts or tracts under observation, but not officially recognised as distressed. The attention of all officers is directed to section 22 of the Bengal Famine Code, which lays down that officers of all departments employed on famine duty will take their orders from the Collector on all points not strictly professional.

2. The most suitable form of labour on which to employ the people is earthwork on—

(1) Raising and improving existing roads.

(2) Constructing new roads either as feeders to existing or projected lines of railway, or through tracts where there are none at present and where it is a public convenience to give means of communication.

(3) Extension of irrigation works and the construction of new channels or *pynes* as they are locally known.

(4) Flood embankments.

(5) Railway embankments.

(6) Deepening existing tanks and digging new ones at selected sites. The quantity of work available under the above heads has been worked out in sufficient detail for each district in North Bihar, and statements giving full information in regard to them have already been circulated to the several officers concerned.

3. The work which has to be done in the field may be conveniently considered under the several following headings, which are placed more or less in the order in which they will call for attention:—

I.—Establishment.
II.—Tools and baskets.
III.—Funds and supply of coin.
IV.—Drinking water.
V.—Food.
VI.—Field hospitals.
VII.—Hutting.
VIII.—Conservancy.
IX.—Organization of relief labour. The gang.
X.—The task. Setting out work and getting it done.
XI.—Wages.
XII.—Reports and accounts in the field.
XIII.—Checking work, numbers and payments.

I.—Establishment.

4. The districts of Bihar in which relief works on a large scale are to be carried out will be formed into two Public Works Circles each under the charge of a Superintendent of Works. The districts of Darbhanga and Muzaffarpur will comprise the 1st Circle, and those of Saran, Champaran and Shahabad the 2nd Circle. The Superintendent of Works of the 1st Circle will also be in charge of any relief works, which may be necessary in the Patna district. Both officers will take their orders from the Commissioner, Patna Division, on all matters relating to relief operations which are not of a strictly professional nature. The head-quarters of the Superintendents of Works will be determined by the Commissioner of the Patna Division. Each district will be a Public Works Division, with an Executive Engineer in charge. The district will be broken up into as many subdivisions as may be necessary according to the requirements which have to be met. The subdivision will usually be held by an Assistant Engineer, and the number of upper and lower subordinates attached to it will be determined on a consideration of the relief works which have to be undertaken. Any number of workers, up to 5,000, or at the outside 6,000, will form a 'charge' and will require an 'officer-in-charge,' whose duties are described in article 59 of the Famine Code. If the numbers on a work exceed 6,000, an additional work should be commenced without delay; another part of the same road may suffice, but it *must be* a separate 'charge.' If the 'charge' contains less than about 3,000 workers, it will be sufficient to give him one sub-overseer to help; but if there are more than that number, he must have two such men.

The duties of the 'officer-in-charge' are of a responsible nature, and it is essential that he should be a person in whom complete confidence can be placed. He will be appointed by the Commissioner of the Division or the Superintendent of Works, and will be a part of the Public Works establishment. He will be posted by the Superintendent of Works on the indents of the Divisional Engineer. He will be the cashier and general supervisor on the spot, and one of his duties is to see that work is really done, or else proper fines actually recovered for short work. It is to be clearly understood that the officer-in-charge has control of the entire staff and operations of the charge. The Sub-overseers are immediately under him and should implicitly obey his orders. He may employ them on any duty connected with the charge which he may think necessary.

5. It is the duty of the sub-overseers to obey the orders of the officer-in-charge. They are required to lay out work in advance, to have profiles ready where necessary, to measure up the work done by each gang of workers, to assess the requisite fines for short work in the manner explained further on, and may be called on to assist in mustering and paying the workpeople. Where there are two or more such men, one of them, if a road is being constructed has to look to the setting out of work ahead, and the other to the proper finishing up of it behind the gangs. One of them is put in charge of all tools on the work. The men will be posted by the Superintendent of Works on indents from the Divisional Engineer, whose duty it is to regulate his indents in

accordance with the probable number of workers, and to apply a fortnight in advance of requirements, wherever that is possible, so as to have the officials on the spot in time to prevent the organization being overpowered by a rush of relief workers. When no more Public Works sub-overseers are available, suitable men of the class of overseer, or sub-overseer, should be temporarily engaged by the Superintendent of Works or Divisional Engineer on a salary of Rs. 50 to Rs. 65 per month, on the terms stated in the form of appointment put in as Appendix VII. The Divisional Engineer should keep a list of any suitable local men he can hear of, and appoint them as occasion arises, reporting each such appointment to the Superintendent of Works, with the information required for the purpose of filling in the appointment form in the office of the Superintendent of Works.

6. When there are only three or four separate charges going on in a district, the Subdivisional Officer can look after them himself ; but when there are more than that number, he will require the assistance of a Public Works Upper Subordinate, whose services will be obtained by an indent from the Divisional Engineer on the Superintendent of Works. The subordinate will act under the orders of the Subdivisional Officer, and it will be his duty to go round his parties in succession, spending three days with each when possible, to correct all faults in organization, to check the numbers and payments, check the quantity of work and look into its quality, and also assist in aligning new work, or anything else the Subdivisonal Officer may require help in. When it is impracticable to depute a Public Works subordinate for these duties, a temporary Officer will be appointed by the Superintendent of Works, ordinarily on a consolidated salary (including travelling allowance) of Rs. 150.

7. Every 'charge' requires the following minor establishment:—

One vernacular clerk qualified to act as sub-cashier under the officer-in-charge. He will ordinarily be appointed by the officer-in-charge, who is responsible for him. Salary, Rs. 15 to Rs. 20.

One clerk who can keep accounts in English. May best be appointed by the officer-in-charge, whose assistant he will be. Salary, Rs. 25 to Rs. 40.

One muharrir able to read and write for about every 500 to 600 relief workers. These should be reputable men known to some local official as being trustworthy. Salary, Rs. 10 to Rs. 15.

One tools muharrir. Salary, Rs. 8 to Rs. 12.

The duties of the first two are obvious, they are assistants to the officer-in-charge. The muharrirs calculate the wages and do the greater part of the actual counting out and disbursing of wages, each for his own gangs. The tools muharrir, or store-keeper, has immediate charge of the tools under one of the sub-overseers, who is responsible for him and should make the appointment.

In addition to these there has to be a foreman of the water arrangements. Salary Rs. 12 to Rs. 18 per month. Two or more 'mates' on daily wages under him. An experienced 'mate' or '*tindal*' for nicking out the work set out by the sub-overseer or work-agent. His gang of 10 to 20 men should all be intelligent professional labourers, accustomed to that sort of work and paid as Class B. There must also be a *jamadar* of sweepers in charge of the sweeper-gang.

For the equipment of each gang in the way of tools, &c., see Appendix VII. Arrangements should at once be made for the supply of all articles therein enumerated.

II.—Tools and Baskets.

8. For every 1,000 attendants on a relief work, including both workers and their dependants, a supply of 120 digging tools and a first outfit of 600 baskets will be required. The digging tools will ordinarily consist of 10 to 20 per cent. of pickaxes and the rest *kodalis*. The proportions of these tools will vary greatly with the nature of the soil to be dug. It is impossible to give any general directions on this point, and the Divisional Engineer must see to the right kind of tools being provided for the work that has to be done. Ample provision requires to be made for keeping up the supply of

baskets, and clear instructions in regard to the sufficient supply of these articles should be issued by the Divisional Engineer.

9. It sometimes happens that the people rush on to a relief work in the most unexpected manner, and 9,000 or more people may be present on a work four days after it is opened and before there is time to start another one, or get tools. To provide against such accidents, every new work should have a supply of tools for 10,000 persons when it opens. If a rush occurs, it can be met and there will be time to draft off the surplus numbers with a supply of tools, &c., on to a new work opened for the purpose with the Collector's sanction and assistance. If there is no such rush during the first ten days or so, tools for 6,500 persons should be kept on the work and the balance sent to any new work about to open, or any other work which may be in want of them at the time. In every case a newly opened work must open with tools enough to give employment to 10,000 persons (including dependants) in case there is a rush. This is never to be omitted.

10. In all road and embankment work large numbers of wooden *thappis* for breaking up clods will be required: a supply of 4,000 *thappis* should be ready to start with. These will require to be of the pattern in local use, but rather light, and should be made up in advance on the spot or wherever most convenient to start with. A small gang of carpenters should be employed on every work to keep up the supply of these and of tool handles of which latter a supply of 3,000 should always be on hand.

III.—Funds and Supply of Coin.

11. The credit order is obtained in the usual way through the Examiner of Public Works Accounts, but the problem is to keep the different relief works in funds on the spot without a very large floating balance in process of transit. An imprest of over Rs. 1,000 is forbidden; it is therefore of no use to give the officer-in-charge an imprest on any large work. He must keep a cash-book, but he may not have a separate credit in the treasury. The following method of keeping the relief works in funds has proved very successful and economical in the North-Western Provinces.

12. The Divisional Engineer, in consultation and with the help of the Collector, selected two or more sub-treasuries as paying centres, and arranged that the official in charge should cash cheques sent him in his name, but for certain pre-arranged officers-in-charge of relief works. The Subdivisional Officer himself started each work and kept the officer-in-charge in funds while there. A few days of open work showed how things were going. When leaving the work, the probable expenditure for the next week was computed, and the officer-in-charge given enough money to keep him going for that time. After that a watch on his daily reports was kept, and before he had run out of funds, his expenditure for the next week was calculated, and a cheque for the amount sent to the sub-treasury officer in the name of that officer, but endorsed 'for' the officer-in-charge to whom the money was intended. The cheque was cashed by the sub-treasury officer and the money sent under guard to the officer-in-charge, who entered it in his cash-book in the usual way.

13. Each 'charge' will require one iron safe about $2\frac{1}{2}' \times 1\frac{1}{2}' \times 1\frac{1}{2}'$ high. There must also be two wooden chests, iron bound and tin lined, with two hasps and padlocks. Size of chest, $2\frac{1}{2}' \times 2' \times 2'$ high. One of them remains on the work and holds the pice, the other is used in transporting money from the treasury. If the chest is not tin lined, the pice fall through the cracks which occur in green wood.

14. At least three weeks' supply of copper coin should be available in local treasuries to begin with. At first it will mostly soak into circulation and disappear, but after a short time it will begin to flow back in exchange for silver; and after the works have been going for six or eight weeks, the rupee will be at a premium, and Baniahs will give something more than 16 annas in copper for the silver rupee.

IV.—Drinking Water.

15. To keep this pure it is necessary to guard the wells from contamination for some days before a work is started. Select some respectable, cleanly man of good caste who can be trusted to attend to the business, and make him

foreman of the water arrangements. He must have four or five Brahman mates, a Kahar mate, about 20 Kahar carriers, and the same number of Brahman drawers and distributors under him. He will require about 10 iron buckets (*dóls*) of the country shape (with a round bottom) for drawing water, and about 60 kerosine tins for carrying water. This will probably be enough to commence with, but the proportions will of course differ with the distance of the wells from the work; and in any case the staff and plant will probably have to be increased at one time or another.

16. The kerosine tins require to be strengthened with an iron strap under them and a handle for carrying about. Half of the top should be cut away and hinged on again to prevent water splashing out. The water foremen should take possession of all wells close to the future work a week or so ahead of the workers, and at once put each in charge of a Brahman with one or more assistants, and arrange so that these men shall draw water for any one who requires it: but they must *allow no one else to do so*, or even to come on the well platform. From that time till the workers leave the locality each such well should remain in charge of the same set of men, and they should never allow any other person to dip a *lota* into it, or to stand on the platform. The rigid preservation of the purity of the water-supply is one of the very few sanitary measures which the people will heartily approve of, and in which they will assist so far as they can do it without taking trouble.

17. The actual distribution is most readily effected by utilizing the old established method of setting up *piaos*, or drinking places, at short distances apart. A large earthen jar, called a *gol*, is purchased for three or four annas and set up, a little aslant, on a low mud platform. By the side of it a narrow trough some five feet long is set up on two stakes, with a slight slope through it and the further end about two feet above the ground. It is important to take care that this trough shall always be of iron, never of wood.

18. The jar is filled from the kerosine tins (earthen *ghárás* must never be used for carrying water in) by the water Kahars, and by them alone; no one else may touch it. By the side of it sits the distributing Brahman, and when any one comes for water, he fills his brass pot, or *lota*, and pours water into the man's jar, or pot, by means of the trough. He must never pour directly into any man's pot or jar, but always into the trough and thence into the jar, placed below the trough and filled from it. It is important to have the trough well above the ground, so that it may not be touched by the jars or splashed from them. It is important to have the trough of iron, because if it does happen to get infected, it will, what with rust and heating in the sun when dry, almost certainly disinfect itself very soon after. The great jars, *gols*, should never be carried on to a fresh place, but should be broken up, and new ones used at each new *piao*. One such *piao* should be set up at every second furlong stone along a relief work.

19. If there are more wells than need be used, the unused ones should be guarded to keep off the workers, and so also with doubtful or tainted wells. If wells are miles apart and a doubtful one has to be used, it should be disinfected with permanganate of potassium according to Professor Hankin's instructions reprinted as Appendix I. So also if cholera should break out. If water has to be carried a long distance, it will be found best to carry it in casks fitted with brass cocks and loaded two in a cart. Wells should always be drawn on in preference to tanks, if within a practicable distance. All this organization about the water-supply may seem to involve a great deal of trouble over a small matter, but a neglect of it will have sure consequences where large bodies of people are collected together, and especially when they are famine-stricken people. These precautions are of vital importance to the public health.

V.—Food.

20. It is desirable that the quality of the food supplies brought to the works should be looked into very frequently, and immediate action taken against any one found selling unsound food. The food trade on a full sized famine relief charge is greater than that in any ordinary small Indian town, and if special facilities are given to respectable local traders, they will be careful

not to lose them by selling unsound food, or worrying the people with needlessly frequent changes in their prices. Following the principles of article 80, Famine Code, the undermentioned advantages can be offered, among others, in exchange for fair trading:—a small grass hut for a shop situated near a *piao*, and within the range of the treasure or other guards and free carriage of grain from the nearest mart, if the trader is willing to sell at the current rates of that mart; prompt and free exchange of all his copper into silver paid into the local treasury to his credit. It is usually quite easy to find several respectable men who can understand the value of such advantages to their trade, and are willing to give honest goods and reasonably steady prices in exchange for them, so long as they are pretty closely looked after.

But it may occur that a relief work is situated in such a remote locality that private traders are unwilling to go there without other inducements than those noted above. In that case, or in similar cases should they occur or be likely to occur, the Collector of the district should be communicated with promptly, and he will take such measure as are necessary for supplying grain on the works.

VI.—Field Hospitals.

21. Assistant Surgeons or Hospital Assistants are deputed to these works by the Inspector General of Hospitals, and their arrangements are looked after by the Civil Surgeon of the district. It is the business of the Public Works to construct field hospitals at sites selected by the Civil Surgeon, and on a plan approved by him. The plan must be as simple as possible, and so arranged that the whole can be burnt down when the structure is abandoned for a fresh one; while at the same time there must be provision for the patients to get quickly out of the enclosure if it catches fire while in use. This will be secured by forming one side of the enclosure of a mud, or clod, wall with a gateway in the middle, and kept quite clear of hutting. The other three sides may consist of huts; but if the enclosure is entirely surrounded by hutting, the occurrence of a fire will lead to many patients being burnt to death. All the grass hutting should be whitewashed with a thin mixture of lime and clay.

22. There must always be a spare hospital ahead of the one in use, so as to be ready for an epidemic. An abandoned hospital must be immediately burned to the ground. If it has held patients suffering from any epidemic disease, the site of the burnt hospital should be sprinkled over with about six cubic feet of quicklime sifted evenly over it, and the whole then well sprinkled over with water enough to wet the lime thoroughly.

23. Sufficient attendants, carriers and others should be supplied to the hospital assistant or other officer in medical charge according to the scale laid down by the Civil Surgeon in each case. Relatives of patients should not be allowed to swarm round them, and only so many admitted as the Civil Surgeon directs. No other relatives than those admitted under the Civil Surgeon's regulations should be given even a famine minimum wage so long as they idle at the hospital in pretended attendance on a patient. The hospital water-supply should be worked by its own staff, and not in conjunction with the general supply for the relief workers. This is an important point, and it will require some insistance to keep the two quite separate.

VII.—Hutting.

24. The workers will ordinarily require no shelter excepting in the hot months and in the rains. There seems to be nothing better on a large scale than screens about 6′ long by 4½′ wide, made of very open bamboo trellis work, strongly tied and thatched with about 1½″ thickness of any thatching grass available. These screens, either in the open or on the side parts of a road under construction, make suitable shelters.

The people are very ingenious in improvising shelter with such screens, and two screens will shelter six to eight persons, counting in little and big. Every work will have a number of men who can be profitably employed in making the screens. The question should be well considered and all due arrangements made: but the actual provision of shelter should be carefully kept down to the lowest requirements, as it is very easy to waste a great deal of

money in providing an unnecessary amount of shelter, which the people will absorb and waste to any extent so long as they have not to pay for it. When shelter becomes necessary the screens must be given out to mates of gangs.

25. Every effort will be made to procure tents enough to shelter the officials connected with the works, but there may be many left unprovided for. These should be hutted in small grass huts with the walls plastered with mud on the inside, and all other surfaces whitewashed, both inside and out, with a thin wash of clay and lime, in about equal proportions, as a protection against fire. An experiment with a bundle of coarse thatching grass washed in this way will show the men what an effective protection it is. The huts should be 9′ × 6′ with the ordinary pent roof, and made in sections so that they can be readily dismantled and re-erected, and easily carried in an ordinary cart, or by coolies. The whitewash and the mud plaster should be renewed at intervals. The sides need only be 4′ high; any extra height wished for can be got by digging out the floor. The local staff of each 'charge' should be generally hutted in this way.

VIII.—Conservancy.

26. The conservancy of every hospital should be carried out by its own staff of sweepers under the directions of the officer in medical charge. For the staff there should be the usual screen and ditch, and the officer in charge should be instructed to have it well looked after for his own sake. Experience has shown that it is not practicable to make any latrine arrangements which the workers can be induced to use. The most that can be done is to post a few stalwart men, under a competent mate of their own class, to insist on the workers going at least 300 yards off the work in their morning walks. They should generally go to the east of the work, but if there is a village near on that side they should be made to go in the other direction. It is of great importance to the health of the workers, and if worried into it for a short time they at last accept it as an admitted custom (*dastur*), and give very little more trouble about it. Any officer in charge who will take the trouble can enforce the system and keep it going.

27. There must always be deaths on these works; if unhappily an epidemic should burst out, there will be numerous deaths, and the disposal of the dead is a matter that must be attended to. The workers will not attend to it properly: in general, they have not the means. At every three or four miles of a relief work there should be a place set apart for the disposal of corpses, one for Hindus and the other for Muhammadans. The two places should, if possible, be on some locally accustomed spot; they should be far apart, and neither should be near a village, nor within half a mile of the work. Each should have a very small appropriate staff.

At the police guard or other convenient place, there should be arrangements for the disposal, free of charge, of every Hindu body which friends do not bind themselves to burn or otherwise dispose of. For the Muhammadan cemetery there should be one or two grave-diggers, preferably of the *gorkanwl* class, who would keep a certain number of graves ready dug. The graves should be not less than 5 feet deep, and the dead should be completely and decently covered in. Unclaimed bodies should be disposed of by the police.

28. If this organization is got into train from the first, it will be ready against the occurrence of an epidemic, and it can then be extended to any required extent. But if a skeleton organization is not ready, then it cannot be improvised in the rush of an epidemic, and corpses will be thrown into every adjacent stream or *nullah* or left lying about in the fields.

IX.—Organization of Relief Labour. The Gang.

29. The classification of the workers is given in article 62, Famine Code, nd may be paraphrased as follow :—

A.— Able-bodied professional labourers accustomed to the kind of work they are engaged on.

B.—Able-bodied labourers, but not accustomed to that kind of work.

C.—Able-bodied persons who are not labourers.

D.—Persons who are weakly, but still fit for light employment.

All the officials in charge of a relief work are working under pressure; and any unnecessary addition to their work reduces the stock of time and energy available for useful work. If he does his duty, the most harassed man of all is the officer in charge, and every complexity of classification is a continual burden to him, and in a less degree to every other official connected with the work.

It is found in practice that the number of workers under class A is inconsiderable, and for that and other reasons the class need not be considered further. The vast majority of the workers are agricultural or other labourers and peasant farmers, and they rightly fall into class B. There is a sprinkling of class C. These persons are very largely utilized in the miscellaneous employments in connection with relief work, where they rightly receive the wage of class B, or in some cases a small addition to it; and the remainder is too small to classify separately. There is a larger proportion of class D (weakly persons), many of whom can work up into class B after a fortnight or so of fair feeding.

Having regard to the facts of the case as noticed above, it is better to omit classes A and C altogether, and to reduce the classification to the following terms:—

Workers—Class B	... ...	Men, women, children.
Ditto Do. D	... ...	Ditto ditto.
Dependants (gratuitous)	... ...	Ditto ditto

It will be seen from paragraph 47 below that the scale of wages errs, if at all, on the side of excessive liberality.

30. The children have to be divided into four grades for the purpose of giving them fairly proportioned wages. The best grading is in the following terms:—

I.—Worker—age apparently between 12 and 16 years. Above 16 years counted in as an adult.

II.—Worker—age apparently between 10 years and 12.

III.—Gratuitous—age apparently under 10 years.

IV.—Gratuitous—children in arms.

All children over 10 years of age are to be counted as workers, unless so crippled that there is no likelihood of their filling out and working. All children under 10 years of age are to be counted as "dependants on gratuitous relief."

31. The manner of starting a relief work is as follows. The Collector of the District gives timely intimation to the Divisional Engineer of the locality in which a work is required, the date by which it is to be opened, and the number of persons who may be expected. The Divisional Engineer then arranges with his Subdivisional Officer to have the necessary staff collected at the spot, such as the officer-in-charge, the sub-overseers, and the necessary clerical staff. The work is then marked out, and all points of organization gone through with the officer-in-charge, who receives full instructions from the Subdivisional Officer in regard to the various matters which have to be attended to. There should be a guard for the money chest and to give assistance in other ways. If a police guard cannot be supplied, arrangements should be made for the entertainment of pensioned sepoys for the purpose. The tools are kept in an enclosure near the work, a sort of 'zareeba' with a thorny wall or fence round it, and the storekeeper is hutted in it, with his note-book of issues and receipts ready by him. Somewhere close to the tools depôt is a large red flag on a tall bamboo, and that is the place to which new comers are told to gather together as they arrive, and here the gangs are made up. The morning is full of work, and gangs are best made up in the forenoon, commencing at about 10 o'clock, and the men started on the work in the afternoon. While the gangs are being made up, the future muharrirs must be present.

32. First select about 70 or more persons from the same or neighbouring villages if possible, then put out the able-bodied men and stand them apart; then tell their women and children to stand with them. There may, perhaps, be also one or two old men too feeble to work, who

* This is for classification only; for wages see paragraph 47.

are dependant on some of the workers, and must be let into that gang. Count out all the children under 10 years of age as non-workers, or 'dependants,' who will receive gratuitous relief, and also the one or two very feeble old men or women who belong to some one and are too weak to work. Select weakly single men (still fit to work), women, or other strays (fellow villagers if possible), till the gang is made up to about 60 workers, in addition to the dependants who are unfit for work.

33. Next, select a 'mate' for that gang from among the relief workers present, a fellow villager if possible, and make the muharrir fill up the muster or nominal roll. This form gives the names and numbers of each class of individuals in the gang, whether workers or dependants in receipt of gratuitous relief, and represents the actual gang as constituted. The several headings are given in English and vernacular. The first page is practically a measurement book for the work done by the gang day by day, and in addition to giving the progress, *i.e.*, the amount of work done, it also shows the actual payments made. On the last page is a detailed abstract showing the numbers employed daily and the wages due after deducting fines which may have been imposed for short work, &c. The nominal roll must be filled up under the eye of the officer-in-charge: the gang must be given a distinguishing number at once: and the gang number, mate's name, and muharrir to whom consigned should be recorded in the note book of the officer-in-charge at the same time. Each man (or woman or child) of the gang should be given a card-board ticket, the size of a railway ticket, on which is to be written his name, number in the gang (taken from the nominal roll) his class and rate of pay in pice. This ticket is to be retained by him so long as he remains with his gang. From the nominal roll a 'mate's list' is prepared showing the persons in his gang, *vide* paragraph 51. This list should be made over to the mate, who should always have it with him. He should be given a small circular tin case in which to keep it. Each mate will have a small flag of white linen on a pole or bamboo 6 or 7 feet long, and the number of the gang should be shown in red on the flag. The gangs will be numbered from 1 to 100, and the mate should have a badge fastened to his arm with the number of his gang upon it. Ten mates will form a 'party.' The 'party' should be under a 'muharrir,' who should be a man of some intelligence and able to read and write. The muharrir will be numbered from I to X, and each man should have his number on a badge, which he should always have with him. He will have a good sized red flag with his number on it in white for marking his charge. He will be responsible for the management and movement of his 10 gangs, aggregating from 500 to 600 persons. He will help to set out tasks, will keep the muster rolls of his gangs and be responsible for their correctness, and will assist in the distribution of wages. The muharrir sends on the gang with a slip to the storekeeper to deliver certain numbers of tools, baskets and *thappis* to the mate of the gang.

34. Arrivals in the afternoon will be given food in accordance with Famine Code, article 61, and will be made up into next day's gangs.

35. People once formed into a gang must not be allowed to stray into others without special permission. Mates should be chosen with an eye to position among labourers, intelligence, and ability to exercise some sort of authority among their people. During the selection of gangs it is necessary to keep in mind and provide for the requirements of the hour in the way of filling up depleted gangs, and of special labour, such as water-drawers and carriers, water distributors, conservancy patrols, sweepers, &c. The latter must be drafted into the special gangs formed for those purposes.

36. As regards 'dependants' attention is invited to articles 83 and 84 of the Famine Code. The proportion of children under 10 and other dependants will often rise above 10 per cent. where whole families come on relief together. As regards the persons who may be admitted on to these works, see articles 61, 83 and 84. These works are not intended for persons unable to do any work and not dependant on a worker; for such there are the poor-houses. But if any such starving persons apply at one of the works, they should be fed for a day or two until an opportunity occurs of sending them on to a poor-house.

37. The gang is the basis of all organization, and it must be kept as permanent as possible. No mate should be allowed to admit any new persons into his gang of his own authority. As soon as a gang has received its tools, it must be marched on to a previously marked out piece of work, and it will thereafter be always treated as a unit. It will be drafted from one work to another, or from one part to another (as when works are progressing along a road), as a unit, and in accordance with the procedure laid down in article 75 of the Famine Code, and with the gang registers written up to date.

X.—The Task. Setting out work, and getting it done.

38. The special gangs of water-carriers, hospital attendants, conservancy men and so forth, have their own special duties, and the practical mode of getting value from them is to take care that there are no more of them than the work requires, and that they perform their duties efficiently. But the great mass of the workers are on a different footing. If the arrangements are complete there is any quantity of work for them to do. The problem in working under the Famine Code is to find how much work they should do without being overworked, and to get them to do it.

39. Section 66 of the Code refers to its Appendix IV on the question of quantity, and the Appendix contains rules for modifying tasks in accordance with the 'lift' and the length of 'lead.' The experience of the North-Western Provinces during the recent famine in Bundelkhund is that this is quite unnecessary. It was found there that the people must be taken as they come, and the diggers must be distributed in the proportion they happen to bear to the fillers and carriers. The fillers and carriers were usually far too numerous for the diggers, and, instead of reducing the task because the fillers and carriers might be overworked, experience proved that it was only with a high lift and long lead that the diggers could do enough work to give the others a proper amount of work. Under the system of wages laid down by the Code, a man's income is very greatly increased by bringing all his women and children on to the works. In the North-Western Provinces, therefore, it was found expedient to omit all calculations as to lift and lead in any work done by famine labour under the Code system of wages.

The problem was thus very much simplified. The task depended entirely on what the digger could excavate; whatever that quantity might be, there were always enough fillers and carriers to dispose of it. From this it followed that the effectiveness of the whole gang as an instrument of labour depended entirely on the effectiveness of the digger, and on him alone. If the digger gave a good day's work, the whole gang had to do the same; and if he idled, no possible industry on the part of the remainder could make up for it.

40. It is, however, not considered probable that the same conditions will obtain in Bihar, and certainly will not in Lower Bengal. The returns received up to date of persons on relief works show that the women and children together do not greatly outnumber the men, and if the figures given are to be relied upon, and can be taken as representing what will occur during the continuance of distress, it is evident that the system of exacting a task from the diggers only, that is, from able-bodied men, which was found to answer in the North-Western Provinces, cannot be applied in Bihar advantageously. The system of exacting a task from the gang as a whole, instead of from the individual digger, will, it is thought, give better results, and in its working it will undoubtedly give less trouble and inconvenience to the officer in charge and his staff. Attached to this are tables showing the amount of earthwork which each man, woman and child should perform under various conditions of lead and lift in soft, medium, and hard soils. Taking the case of the typical gang described in paragraph 32, the quantity of work which it should do in a day is arrived at thus. The gang consists of 60 workers, of whom say 20 are strong able-bodied men, 5 weakly men but fit to do as much work as an adult woman, 20 women, 10 children from 12 to 14 years of age, and 5 over 10 years but under 12. Supposing the work on which they are engaged to be the excavation of a tank, that the lift is from 3 to 6 feet, the lead 150

feet, and the nature of the soil medium. Referring to Task Table 2(A) the following shows the task to be exacted from the gang :—

		C. ft.
20	Able-bodied men ... ... at 47 c. ft. =	940
20	Adult women ... ... „ 37 „ =	740
5	Weakly men ... ... „ 37 „ =	185
10	Children 12 to 14 years ... „ 28 „ =	280
5	Do. under 12 and above 10 years ... „ 18 „ =	90
	Total day's work =	2,235

* NOTE.—The task to be allotted to a child under 12 and over 10 years may be taken as one-third of that of an adult

Inspection and check.

41. The above is given as a mere example, but the principle *mutatis mutandis* should be followed in all relief works. Gangs will as a matter of course vary in numbers, but the collective task of the gang should be fixed in accordance with the tables, and the Public Works staff should by frequent inspection and close checking take steps to ensure that this important matter is carried out by the officer in charge, who will be primarily responsible that the system is properly worked. The tasks given in the tables are not excessive, and are such as the relief workers can reasonably be expected to perform, and they should, once the people have got accustomed to the work, be rigorously exacted. It may be necessary, in the case of people unaccustomed to this form of labour, to impose a somewhat reduced task for the first week they are on the works. What the extent of the reduction should be must be left to those in charge of the works to decide, but usually it should not exceed 15 per cent. of the task.

42. If the Collector of the District considers the task unsuitable, the Subdivisional Officer will alter it on receipt of orders to that effect from the Collector, but he will at once report the alteration to the Divisional Engineer. The method on which the tasks are worked is the secret of success. The task of each gang should be marked out separately, and the gang should be allowed to start work when they like and to leave off when the work is finished. The amount of work to be done should be clearly explained to the gang. In the case of the typical gang referred to in the preceding paragraph 40, the quantity required from it is given as 2,235 cubic feet. This is represented by a pit $20 \times 37\frac{1}{2} \times 3$ feet. The dimensions representing the task of the gang should be clearly explained to the people, and they should be informed what penalty they are liable to if the full task is not completed. In event of the task not being completed on any day, the mate should be warned and the adults of the gang also. Should the warning be disregarded, the mate should be told that he will be fined one day's pay, or such other amount as may appear reasonable to the officer-in-charge, and that the whole gang will only receive a minimum wage instead of the maximum for such days as the task is incomplete. The general rule should be to punish the whole gang for short work; but if the officer in charge is satisfied that particular individuals are to blame, they should be dealt with as is laid down in paragraph 48.

43. All laying out of work should be planned with three objects as regards the workers: (I) to give each gang its task; (II) to give as many days' work as possible in one place before having to march on to another reach; and (III) so to arrange the available space that the work-people will not be overcrowded. To take an example. Suppose a road 24 feet top-width, height of bank 3 feet and side slopes 2 to 1, the soil medium, and that a gang composed as in paragraph 40 is engaged on it. Taking the lead as 50 feet, the lift as 0 to 3 feet, and the soil as medium, the daily task for the gang would be [Task Table 2(A)]—

		C. ft.
20	men ... ... at 65 c. ft. =	1,300
20	women ... ... „ 52 „ =	1,040
5	weakly men ... ... „ 52 „ =	260
10	children 12 to 14 ... ... „ 39 „ =	390
5	„ under 12 ... ... „ 22 „ =	110
	Total day's work =	3,100

Then about 34 lineal feet of road embanking will give a gang one day's work, and about 204 lineal feet will give them six days' work. In order that the work-people may have plenty of room to move about in, the borrow-pits should be so arranged that each person should have a space of from 20 to 30 square feet. When the work is the excavation of a tank, the greatest care should be taken in laying out the gang-pits to prevent overcrowding.

44. Laying out work on a road is simple enough, and should be done well in advance of the workers. The setting out consists of two parallel lines for the embankment, and outside these two more such lines on each side to mark the pits. The distance apart of these last lines is of considerable practical importance, and should be such that pits of either 1′ or 2′ depth shall give a little more earth than is required for the road.

45. At the rear of every relief 'charge' there should be a finishing gang, one that has shown it has learned its work well and is under an intelligent mate. It will be the duty of this gang to properly finish up all irregularities left by the less skilful gangs in front. No particular task can be set for them, and the work very largely depends on the mate in charge, who should be a professional *tindal* on a monthly wage. The whole appearance of the work, when finished, depends on this part of it being properly attended to.

XI.—Wages.

46. The wages are laid down in Articles 101 to 106, and section 104 prescribes a scale of wages based on "grain equivalents," which is to govern the cash wages paid on these works. There are different scales of wages, and in making a selection several points have to be considered. The wages of the workers are to be regulated by the scale of grain equivalents prescribed in section 104 of the Famine Code. These equivalents are to be converted into money on the basis of the current retail price of the staple grain in ordinary local consumption by the labouring classes and in the state, husked or unhusked, in which that grain is ordinarily sold by retail for consumption.

47. The following scale will be used:—

Mates of gangs and other persons in responsible posts.	Six pies more than the maximum
Adult males, workers, and men in special gangs.	Nineteen *chitaks* of grain.
Adult males who are unable to do a full task	Fourteen *chitaks* of grain.
Adult females,—All classes ...	Thirteen *chitaks*.
Male adult dependants	Twelve *chitaks*.
Female dependants	Ten *chitaks*.
Working children, grade I—Over twelve and under sixteen years. ...	Ten *chitaks*.
Working children, grade II—Over ten and under twelve. ...	Six *chitaks*.
Non-working children, grade III—Under ten years.	Four *chitaks*.
Non-working children, grade IV—Infants in arms.	One pice extra to the mother.

If the exact money equivalent of the preceding grain wages exceeds the nearest pice below by two pie or more, the next highest pice will be given. If the exact sum exceeds the nearest pice below by less than two pies, the next lowest pice will be given.

48. Workers who fail to perform the allotted task may be punished as follows:—

(*a*) by fine, provided that the grain ration (or its money equivalent) paid as wages shall not be less than the penal ration prescribed in section 100, Famine Code; or

(*b*) by payment as wages of the penal ration in cooked food at a State kitchen established on the work; or

(*c*) by removal from the work to the nearest poor-house.

49. Wages are to be fixed by the Collector, who will keep the Divisional Engineer duly informed. They are not to be altered for variations of less than 10 per cent. in the price of food-grains. Excepting in case of urgent necessity, which should be immediately reported, they are not to be altered without previous reference to the Commissioner. It is desirable to pay the

labourers daily, and every effort should be made to do so. See sections 63, 64 and 68 Famine Code. Arrangements should be made under section 63 to get each gang to appoint its own headman, to whom the wages earned by the gang could be handed over for disbursement. For purposes of payment ten or more gangs might be placed under a muharrir. The wages earned by the gangs would be calculated in the evening after the completion of the day's work, and the amount due to each put into a separate bag with a label attached giving name of gang mate. All these bags would then be put into a larger bag with the name of the muharrir on it. In the morning the bags would be made over to the muharrir who would hand to each gang mate in the presence of the officer-in-charge or of the Sub-Overseer the bag containing the wages of his gang. It is obvious that if payments are made daily, there is less room for fraud and the workers are more certain to get what is due to them. A system of daily payments based on the above lines could no doubt be worked out, and if carefully attended to, it would probably be found satisfactory. The matter is one of extreme importance, and the Superintendent of Works should give it his early attention. A copy of the instructions issued by the Superintending Engineer, 2nd Circle, Public Works Department, North-Western Provinces, regarding the payment and distribution of wages on famine relief works, is appended for information. A similar plan could probably be followed in Bengal with advantage. A table or ready reckoner, showing the wages to be paid in accordance with the varying price of grain, is given as Appendix IV.

XII.—Reports and Accounts in the Field.

50. The Examiner, Public Works Accounts, Bengal, is now drawing up a statement showing the various accounts necessary to be kept in connection with Relief Works, and it will be circulated with a complete set of the forms and full instructions for their preparation at a very early date.

51. When a gang is first formed (paragraph 32), the "mate's list" is written up immediately after the muster-roll has been prepared and handed to the mate, who should be warned to take great care of it, as his wages depend on it. The heading gives the mate's name and distinguishing number, the name of the muharrir to whom consigned and the date on which the gang was made up. Beneath is a nominal roll of the adults of the gang (men and women, whether workers or dependants), and then a numerical list of the children of each grade. Lastly, a list of the tools to be supplied by the storekeeper. A separate slip containing an order for tools is sent with the mate, to be retained by the storekeeper as a voucher. The "mate's list" is not to be kept up as a regular nominal roll, but is merely corrected from time to time as changes occur in the gang. The mate should not be permitted to have any persons in his gang who are not entered on the list by his muharrir. The officer in charge should check a few lists nearly every day. Every officer inspecting the gangs should check a few. The list gives very little trouble, and is of constant use in examining gangs, and the entries in the muster-roll itself.

52. The first afternoon a gang is on the works the muster-roll is written up by the gang muharrir in whose charge it may be. There is no question of fines. He compares the persons present with the entries, enquires into any differences, and makes any necessary alterations. He pays a day's wages, writes up the second copy of the muster-roll and exchanges it for the first. He tells them about tasks and fines, and goes on. The sub-overseer has meanwhile pointed out the next day's tasks, and told the mate what his duties are, including a word about distributing the tasks for next day overnight, conservancy, drinking water, tool repairs, and *banias'* shops.

53. After the first day the gang muharrir checks attendance in the morning, and fills in the attendance entries. He calculates and enters wages on the muster-roll, tells the mate what they come to, and signs on the line left for the purpose. Some time in the afternoon the sub-overseer, in charge of that portion of the work, examines the work done (if properly set out, the tasks seldom require actual measurement), and enters the quantity due, and that done, on the appropriate line. If there has been scamping or short work, he assesses fines as instructed in paragraph 48 above, explains to the mate exactly what they are and why inflicted, and enters the fines and his signature

below. He makes a note of all such entries in his own note-book. The system of daily payment, as described in paragraph 49 above, can then be followed. On each day that he pays the gang's wages the muharrir takes the copy on which he has paid, and gives the other to the mate. The mate always has one copy of the muster-roll (which he should keep in a tin case supplied for the purpose). The muharrir is obliged to recover the fines as assessed by the sub-overseer and has no power to remit them. Only a written order of the officer-in-charge can remit the fines, and that order must be written on the muster-roll itself—this is necessary to prevent fraud. The copy taken away by the muharrir is submitted by him as his voucher for payments. Every such voucher requires to be examined by the officer-in-charge.

54. The officer-in-charge will despatch a daily report post-card to the Subdivisional Officer, and also to the Collector and the Divisional Engineer if required. The form for this is given in Appendix II, and the cards should be supplied ready printed. He has also to submit to the Collector the reports described in sections 94 and 86 of the Code. Every additional account or report thrown on the "officer-in-charge" is a distinct hindrance to his work, and it is the duty of the Divisional Engineer to see that no clerical work not absolutely necessary is thrown on to him.

55. From the Divisional Engineer the Chief Engineer and Superintendent of Works require a weekly report. They should be submitted with unfailing punctuality, and in accordance with the instructions on them, from the time that relief works are opened under the Public Works Department. The form to be adopted will be intimated by the Examiner. All famine relief forms should be locally printed under the orders of the Superintendent of Works, and charged to Famine Relief contingencies.

XIII.—Checking Work, Numbers and Payments.

56. It is as a safeguard against fraud, and an instrument of detection, that the gang muster-roll first shows its full value. It is of course of no use without the personal element of a man who insists on its being kept up properly, and who will utilize it fully. Every petty official whose end would be served by confusion will try to spoil the muster-rolls and exaggerate the difficulty of keeping them up. This is so marked that an inability to keep them properly may be almost regarded as the sign of a rogue. At least the man is incompetent, and therefore should go. If it is the officer-in-charge himself who fails to enforce method and a checkable system of record and accounts, there is the more reason why he should be replaced by a competent man.

57. The progress shown should be checked by test measurements extending over selected parts of the work, the recorded progress of which can be disentangled from the remainder. For this purpose it is well to have all the accounts of a road, or other long work, closed up at every four miles or so and a new start made. In the case of a tank, one or two cross sections should be taken with a level before actual work is started, so that it may be possible to check the measurements at any time. From the sections the actual contents of the tank to the depth it is to be excavated should be calculated, and the officer-in-charge should be told what the quantities are for each foot in depth. This will enable him to keep a check on the sub-overseers' measurements.

58. The numbers are checked by counting the number of gangs at work along a road, &c., and sampling the entire entries in the mohurir's day-book, by careful comparison of about 20 per cent. of the gang muster-rolls with the entries, and also with the numbers actually found present. Look through the gang muster-roll and see whether there have been any recent curious fluctuations. If so, they require explanation, and the mate's list may throw some light on the subject. The general accuracy of each of the day-books is thus checked in turn.

59. An examination should be thorough, but mostly in the way of sampling, unless something is lighted on, and in that case it should become very thorough indeed. The way in which the accounts and records are kept is often a very good guide to what one may expect to meet with. If they are kept in such a manner as to facilitate check, rigid sample checking will probably be found to be sufficient. If, on the other hand, the books are in confusion and

practically useless for checking purposes, it will be well to have a very complete examination; for there is either carelessness which many will have taken advantage of, or there is worse. Every examination must be conducted with the greatest patience and consideration of the difficulties and pressure under which all are working. Unavoidable error is, however, quite a different thing from actual fraud or criminal carelessness, and the former at least can never be passed over. If enquiries establish a substantial presumption of fraud, the officer-in-charge must be at once removed by the Subdivisional Officer; in case of carelessness the orders of the Divisional Engineer should be awaited, unless immediate removal is necessary in the interests of Government or the workers. In either case the Subdivisional Officer will forward a full report to the Divisional Engineer, and also inform the Collector of the action taken, and the reasons for it. The Divisional Engineer will report the matter to the Superintendent of Works for such further action as may seem to be desirable.

60. When a work is inspected by the Subdivisional or other public works officer the following points should be carefully enquired into, and he should enter in his report the results of the inspection under each head in the order given.

I. Hospital arrangements.
II. Do. do. for contagious diseases.
III. Latrine and conservancy arrangements, fixing of boundary flags, &c.
IV. General condition and health of the coolies.
V. Arrangements for sending sick people found on the work to the hospitals and their disposal and care on first arrival there.
VI. Water arrangements for drinking purposes.
VII. Arrangement for receiving coolies when first arriving.
VIII. Hutting arrangements and shelter against rain.
IX. Classification if properly carried out.
X. Method of mustering.
XI. Do. of paying wages.
XII. Result of scrutiny and check of muster rolls by actual mustering of one or more more gangs and examining tickets.
XIII. Complaints by work people.
XIV. Method in which work is being executed.
XV. Task exacted from the workers.
XVI. Arrangements for safe custody of cash.
XVII. Orders regarding lighting of fires and their prohibition near grass shelter huts, especially the hospital.
XVIII. He should check the entries in the cash-book by comparing them with the daily abstracts, from which Form III, the supporting voucher, is compiled. This is the most important point connected with the accounts of a charge, and should be carefully looked into by an inspecting officer.
XIX. Is every coolie, whether man, woman, or child, and whether worker or dependant in possession of a ticket? And has every ticket inscribed upon it the following details:—I. Serial number of the coolie in the muster roll. II. Number of the gang. III. Wages in pice which the coolie is entitled to receive. IV. Name of coolie.
XX. Checking of equipment staff, &c.

LIST OF APPENDICES.

I.—Professor Hankin's instructions for the disinfection of wells.
II.—Daily Report Post-card.
III.—Form of Appointment for members of Work Establishment.
IV.—Wages Ready Reckoner.
V.—Mate's List.
VI.—Form of Inspection Report.
VII.—North-Western Provinces and Oudh instructions regarding Famine Organization.

APPENDIX I.

Directions for treatment of wells with permanganate of potassium as a means of checking epidemics of cholera.

PERMANGANATE of potassium is a crystalline salt-like substance, of a purple colour, in whose preparation only mineral substances are employed. Hence its use in wells need not be objected to by the strictest Hindu.

Put one or two ounces of the solid substance into a *dol* or bucket that has been filled with water drawn from the well about to be treated. Stir it up, and pour the red solution thus produced into the well, leaving the portion of permanganate that is not yet dissolved at the bottom of the *dol*. Lower the *dol* into the well, fill it with water, draw it up, pour back the water as before. Repeat the process till all the permanganate has been dissolved. After half an hour draw up some of the water and examine it. If a red colour is still present, enough has been added. If the red colour has disappeared, then more permanganate should be added to the water in the well. In all cases enough permanganate should be added to produce a faint red colour lasting for 24 hours.

If the water in the well is bad, more permanganate will be necessary. In such a case it will be found that the strong red colour at first produced quickly changes to brown, and then fades away. This is because the permanganate destroys dirt and is destroyed by it. Therefore, if the water in the well is clean, a smaller quantity of permanganate will be necessary. From one to four ounces of permanganate will be found to be enough for ordinary wells. If more permanganate is added than is enough to produce a faint permanent red colour, it is likely that frogs that may be in the well will be killed. This will in a few days give the water a putrid taste. If the quantity of permanganate is not enough to produce a faint permanent red colour, it is not likely to do any good. If possible, the permanganate should be added at night, in order to leave the wells undisturbed as long as possible. The water will be fit to drink on the following morning. If on the following morning a red colour is still present, the water may have an unpleasant taste, but it is perfectly harmless. If the inhabitants do not like the taste, they should be instructed to pump out the water until the colour vanishes. Always care should be taken to treat with permanganate all the wells in the place, not only those used for drinking, but also those used for washing purposes Care should be taken to explain to the inhabitants the reason of using permanganate, and they should be warned against using water from other sources that have not been treated. If one well is required for immediate use, perhaps it would be advisable to add to it a quantity of permanganate, and to employ *bhishtis* to draw out the water until the colour has disappeared, but this well should again be treated with permanganate on the following day when the other treated wells are brought into use.

Usually water is kept stored in the houses for washing or other purposes in *gharas*, &c. This should be poured away, and, if possible, the inhabitants should be persuaded to wash out their *lotas* and other vessels with water containing permanganate. Unless this is done, isolated cases of cholera are likely to occur even four or five days after the treatment of the wells. I have had experience of a case in which a woman was attacked with cholera after treatment of wells, because she was frightened of touching the red water in the well, and drank water that had been stored in the house and that had been taken from the well before the addition of the permanganate.

A pamphlet explaining the use of permanganate, entitled "The Prevention and Cause of Cholera," may be obtained from the undersigned in Urdu, Hindi, and English. It is being translated by various Local Governments into Burmese, Tamil, Telegu, Malayalam, Uriya, Marathi, Gujrati, Kanarese, and Sindhi.

E. H. HANKIN,

Chemical Examiner and Bacteriologist, N.-W. P. and Oudh.

APPENDIX II.

Famine Relief Daily Report Post-card.

(Forwarded daily to Subdivisional Officer, and to Divisional Engineer, and Collector.)

Famine Relief * * * * District.
Daily Report for _____ 1897.
Work _____

* * * The name of the district is to be ready printed on each post-card.

Items.	Workers.	Gratuitous.
Men, No.		
Women, No.		
Children, No.		
Total, No.		
Total Wages Rs.		

Quantity of work done, cubic feet.
Remarks

Posted on date _____ 1897.

The address is ready printed on the front of each post-card and also a place for, signature of the sender, in most cases the Officer in Charge,

APPENDIX III.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT.

Form of Appointment of a member of the Work Establishment.

(*To be prepared and signed in triplicate, one copy to be given to the person appointed, one copy to be transmitted to the Examiner, P. W. Accounts, and one copy to be recorded in the office of the authority making the appointment.*)

FROM

THE SUPERINTENDENT OF WORKS, FAMINE RELIEF,

P. W. Department,

To

_____

_____

No._____

*Dated at*_____ *the*_____ *of*_____ *189* .

Under sanction conveyed in Government order No._____ dated_____, you are hereby appointed a member of the work establishment of the_____ Division, Public Works Department, Bengal, as a Famine Relief_____ on a consolidated salary of Rupees (_____) _____ per month, with effect from the morning of the day you enter upon your duties under the Executive Engineer of the_____ Division to whom you should report yourself without delay.

2. Your appointment will cease on receipt of a written notice from the Executive Engineer. If he considers your conduct and work have been satisfactory, he is empowered to then pay you a sum equivalent to your salary for ten to fourteen days in lieu of travelling allowance to enable you to return home. This cannot be claimed as a right.

3. You are liable to summary dismissal at any time, without notice, for serious misconduct or incompetence proved to the satisfaction of the district Executive Engineer.

4. While in Government employ you will be subject to, and governed by, the rules for the time being in force in the Public Works Department, supplemented by such other orders as you may from time to time receive from the officer under whom you are serving.

5. Your salary is consolidated and includes all charges, and you will not be entitled to any travelling or other allowances.

6. This appointment is cancelled should you fail to join by_____

_____

Superintendent of Works.

(Declaration by person appointed.)

I HEREBY accept the appointment conferred on me in the above order, the terms of which I clearly understand and agree to; and I hereby bind myself to observe and abide by the rules referred to in paragraph 4 of the said order.

(*Signature*)_____

*Dated at*_____ *the*_____ *th of*_____ *189* .

WAGES READY RECKONER.

Table showing the wages to be paid to the various classes of persons on Famine Relief Works (paragraphs 59 and 60), being the money equivalents payable on the basis of the current retail price of the staple grain in ordinary local consumption by the labouring classes, and in the state, husked or unhusked, in which that grain is ordinarily sold by retail for consumption (paragraph 58).

Description of persons in receipt of relief.	Basis of the wage.	Retail price of the ordinary grain as above.												
		12 *sérs* per Re.	11 *sérs* per Re.	10 *sérs* per Re.	9½ *sérs* per Re.	9 *sérs* per Re.	8½ *sérs* per Re.	8 *sérs* per Re.	7½ *sérs* per Re.	7 *sérs.* per Re.	6½ *sérs* per Re.	6 *sérs* per Re.	6½ *sérs* per Re.	5 *sérs* per Re.
		The wages to be paid.												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
WORKERS.														
Mates of gangs and other workers in responsible posts.	6 pies more than maximum	2 0	2 3	2 3	2 6	2 6	2 9	2 9	3 0	3 3	3 6	3 9	4 0	4 3
Able-bodied adult males and men in special gangs ...	19 *chitaks* of grain ...	1 6	1 9	1 9	2 0	2 0	2 3	2 3	2 6	2 9	3 0	3 3	3 6	3 9
Adult males unable to do a full task	14 *chitaks* of grain ...	1 3	1 3	1 3	1 6	1 6	1 6	1 9	1 9	2 0	2 0	2 3	2 6	2 9
Able-bodied adult females	13 *chitaks* of grain ...	1 0	1 3	1 3	1 3	1 6	1 6	1 6	1 9	1 9	2 0	2 3	2 3	2 6
Children. Grade I (over 12 and under 16) ...	10 *chitaks* of grain ...	0 9	0 9	1 0	1 0	1 0	1 3	1 3	1 3	1 6	1 6	1 9	1 9	2 0
Children. Grade II (over 10 and under 12 years) ...	6 *chitaks* of grain ...	0 6	0 6	0 6	0 6	0 9	0 9	0 9	0 9	0 9	1 0	1 0	1 0	1 3
DEPENDENTS.														
Adult males	12 *chitaks* of grain ...	1 0	1 0	1 3	1 3	1 3	1 3	1 6	1 6	1 9	1 9	2 0	2 3	2 3
Adult females	10 *chitaks* of grain ...	0 9	0 9	1 0	1 0	1 0	1 3	1 3	1 3	1 6	1 6	1 9	1 9	2 0
Children. Grade III (under 10 years)	4 *chitaks* of grain ...	0 4	0 4	0 5	0 5	0 5	0 5	0 6	0 6	0 7	0 7	0 8	0 9	0 9
Children. Grade IV (infants in arms)	One pice extra to the mother	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3

APPENDIX V.

Mate's list.

Gang No.
Mate's name

Gang Muharrir No.

Name

Date of constitution of gang

Class.	Distinguishing number of cooly.	Village.	NAME.	Number of each class.	REMARKS. (Concerning alterations in the gang to be entered here.)	List of tools supplied.
			Males.			
B	1	Shahpur ...	Rohim Bux			4 Kodalies.
	2	Ditto ...	Bhola			
	3	Ditto ...	Korim			
	4	Ditto ...	Ram Dass			
			Total class B ...	4		
D	5	Rezpur ...	Ali			10 Kodalies.
	6	Do. ...	Domun			
	7	Shahpur ...	Kisto			
	8	Ditto ...	Amir			
	9	Ditto ...	Dilwar			
	10	Ditto ...	Rahim			
			Total class D ...	6		
			Females.			
D	11	Shahpur ...	Fatima			10 Kodalies.
	12	Ditto ...	Sema			
	13	Rezpur ...	Beebee			
	14	Do. ...	Pusum			
	15	.....	Mariam			
	16	.....	Kadech			
	17	.....	Alimun			
	18	.....	Rahimun			
	19	.....	Rasulun			
	20	.....	Nasibun			
Children.			Total class D, females ..	10		
Grade I ...	...	.....	Children—Grade I	4		
„ II ...	...	.....	„ „ II	4		
			Dependants.			
			Men, 12 chittacks	5		
			Females, 10 „	4		
			Children, III grade, 4 chittacks ...	8		
			„ IV „ 1 pice	10		
			Total ...	55		

APPENDIX VI.

Inspection Note by

Charge No. *Date*

Road
Tank

District

Division

Officer in charge

General Remarks

Points of inspection.	Remarks by Inspecting Officer.	Orders by Superintendent of Works.
I.—Hospital arrangements.		
II.—Hospital arrangements for contagious diseases.		
III.—Latrine and conservancy arrangements, fixing of boundary flags, etc.		

Points of inspection.	Remarks by Inspecting Officer.	Orders by Superintendent of Works.
IV.—General condition and health of the coolies.		
V.—Arrangements for sending sick people found on the work to the hospitals, and their disposal and care on first arrival there.		
VI.—Water arrangements for drinking purposes.		
VII.—Arrangements for receiving coolies when first arriving.		
VIII.—Hutting arrangements and shelter against rain.		
IX.—Classification if properly carried out.		

Points of inspection.	Remarks by Inspecting Officer.	Orders by Superintendent of Works.
X.—Method of mustoring.		
XI.—Method of paying wages.		
XII.—Results of scrutiny and check of muster-rolls by actual mustering of one or more gangs and examining tickets.		
XIII.—Complaints by workpeople.		
XIV.—Method in which work is being executed.		
XV.—Task exacted from the workers.		

Points of inspection.	Remarks by Inspecting Officer.	Orders by Superintendent of Works.
XVI.—Arrangements for safe custody of cash.		
XVII.—Orders regarding lighting of fires and their prohibition near grass shelter huts, especially the hospital.		
XVIII.—Checking of the entries in the cash book by comparing them with the *goshwaras*, or daily abstracts, from which the supporting voucher is compiled. This is the most important point connected with the accounts of a charge, and should be carefully looked into by an inspecting officer.		
XIX.—Is every coolie, whether man, woman, or child, and whether worker or dependent, in possession of a ticket? And has every ticket inscribed upon it the following details:—I.-Serial number of the coolie in the muster-roll. II.-Number of the gang. III.-Wages in pice which the coolie is entitled to receive. IV.-Name of coolie?		
XX.—Checking of equipment staff, etc.		

FORWARDED to the Superintendent of Works, Circle.

Signature of Inspecting Officer. *Superintendent of Works.*

Date *Date*

APPENDIX VII.

NORTH WESTERN PROVINCES AND OUDH.

INSTRUCTIONS REGARDING FAMINE ORGANIZATION.

General Organization.

The following organization is to be adhered to in carrying out work by famine coolies.

The famine workers will be divided into "charges," each consisting of 5,000 workpeople. A charge will be divided into 10 "Parties," each under a "Jamadar." A "party" will be divided into 10 gangs, each under a "Mate." There will be 50 people in each gang. Each charge will be under an "Officer-in-charge," who will be directly under the Public Works Department, and will ordinarily and whilst carrying out famine work take his orders from the District Engineer. He and his charge will be at the disposal of the Divisional Engineer, who will issue all orders regarding transfer of the charge from one work to another. The Divisional Engineer in all such matters will act in consultation with the Civil Officer of the District.

Officer-in-charge.

The "Officer-in-charge" will have charge of all arrangements for distributing wages to the famine workers. Separate instructions in regard to this special point will be issued.

Work Agent.

Each "Officer-in-charge" will have two Work Agents under him for the carrying out of instructions, and to assist in distributing wages. The pay of the Work Agent will vary from Rs. 25 pay and Rs. 15 horse allowance to Rs. 50 pay and Rs. 15 horse allowance per mensem according to qualifications. The lower rate may be increased up to the latter limit in cases where the work done merits the increase. On this view, except for men of really good qualifications, the full rate should not be given at first. Each Work Agent will have charge of half the charge, *i.e.*, of 5 parties constituted as under.

Constitution of gang unit under a "Mate."

The unit of the charge will be a gang of 50 coolies—men, women and children. The proportion should be so arranged that, as far as possible there are 4 carriers to one digger. Each coolie should on arrival be given a card-board ticket, the size of a railway ticket, on which is to be written his number in the gang and his class. This ticket is to be retained by him so long as he remains with his gang. The task which such a gang can be expected to do in a day is for ordinary soil 1,000 c. feet over a lead of from 50 feet to 100 feet. The wages which the gang will earn would, at an average of one anna a day, come to Rs. 3-2, and this for the earlier period of famine work may be kept as the approximate standard of wage for this class of work. The average wage at famine rates for the grain equivalent is for some time to come not likely to work out to a less average than 1¼ annas for all classes of workers. This wage would give a rate of Rs. 4-11 per 1,000 c. feet, and a rate of Rs. 5 per 1,000 c. feet has therefore been taken for earthwork in the Famine Road Estimates. The question of raising or lowering the rate will always be decided by the Civil Officer.

Duties of "Mate."

Each gang of 50 will be in the charge of a "Mate," who should, if possible, be chosen from the famine workers, but if this not feasible, any man of intelligence may be selected for the post. His pay should be fixed at 2½ annas a day. He will have nothing to do with accounts, but he should be in general charge of the gang, and should be able to give information regarding the various members of it. He should keep a muster-roll by name, if possible: but if he cannot do this, then he should keep a register of the numbers of men, women and children and their classification under the various heads A, B, C, D. Under recent orders there are only two classes of workers, *viz.*, B. and D.

Constitution of a "Party" under "Jamadar."

The Mate will have a small flag of white linen on a pole 6 to 7 feet long. The number of the gang should be sewn in red on the flag. The gangs will be numbered from 1 to 100, and Mate should have a badge fastened to his arm with the number of his gang upon it. Such badges can be made up of brass at a cost of about 2 annas each.

Ten Mates will form a "Party." The "Party" will be under a Jamadar, who should be chosen as a rule from the permanent Road Maintenance Establishment of the District or Division. His pay will be Rs. 10 per mensem. The Jamadars will be numbered from I to X, and each man will have his number on a badge, which he should always have with him. He will have a good sized red flag with his number on it in white for marking his charge. He will be responsible for the management and movement of his 10 gangs, aggregating 500 people. He will help to set out their tasks and will be responsible for their proper numbering and for the correctness of the muster-rolls prepared by the Mates, and he may be employed to aid in distributing wages.

Sub-Overseer, duties of

The above deals with the general constitution of a famine charge. In addition to the staff above indicated, there will be a man of the Sub-Overseer class, who will be responsible for the engineering details of the work to be carried out by the charge. He will of course have the assistance of the other charge officials within their several limits. The Sub-Overseer will, when possible, be a permanent member of Public Works Department; if not a permanent member, he should be a temporary member, with a chance of permanent, employment should he do exceptionally good work. His pay will be ordinarily that of a 1st grade Sub-Overseer with the usual horse allowance. Where the Work Agents of a charge are fully qualified, it will not be necessary to employ a Sub-Overseer. The Divisional Engineer is authorized to use his discretion on this point.

Distribution of a charge when employed on work.

The following additional members will be attached to the staff of a charge:— Petty establishment.

	Rs.	A.	P.	
1 Store-keeper on ...	15	0	0	per mensem.
2 Chaukidars for Stores, each ...	6	0	0	„
1 Clerk, able to read and write English and Persian for the Officer-in-charge ...	20	0	0	„
2 Peons for ditto, each ...	5	0	0	„
1 Peon for the Sub-Overseer ..	5	0	0	„
4 Sweepers, each at ...	0	2	0	per diem.

Time, frontage, and section of road to be done can be correspondingly raised or lowered according to requirements. R. P.

The following will be the distribution of the "charge" when employed on a famine work. Each gang can do 1,000 c. feet. in 1 day and 10,000 c. feet. in 10 days, exclusive of Sundays. The 10 days' task should be taken as the unit. This will work out as follows: It will be assumed that 50 feet is the section per running foot of the road work to be made up, and for this section each gang will take up a frontage of 200 feet, and will be able to excavate during 10 days a borrow pit 200′ × 25′ × 1′ on each side of the road. Each party will be able to do this amount multiplied by 10 and will occupy a frontage of 2,000 feet. The entire "charge" will excavate in the 10 days 10 times this amount, viz., $10 \times 10 \times 10{,}000 = 1{,}000{,}000$ c. feet, and will occupy a frontage of 20,000 feet, or, say, 4 miles.

This distance is not too large to be supervised by the staff provided, and hence it should be adopted as the unit of work and length of road which can be ordinarily excavated by a famine "charge" of 5,000 workers during a period of 10 days exclusive of Sundays. To give work for 5,000 coolies for a month, therefore, it would be necessary to provide a length of 12 miles of road; and if a body of 5,000 famine relief workers has to be provided with work for 3 months, it would be advisable to arrange that they are put on to a stretch of road 36 miles long, with a section of work to be done on it of 50 feet per running foot.

The complete staff for a charge will be as follows.—

Officials.	Pay.	Total.
1	2	3
	Rs.	Rs.
1 Officer in charge, pay settled by Civil Department ...	...	...
2 Work Agents	40 to 65	80 to 130
1 Sub-Overseer, not obligatory	...	...
10 Jamadars	10	100
100 Mates, 2½ annas a day	...	...
1 Store-keeper	15	15
1 Clerk	20	20
2 Chaukidars for the stores	6	12
2 Ditto Treasure Chest	6	12
3 Peons	5	15
1 Muharrir	15	15
4 Sweepers 2 annas a day	...	...

Muster-rolls never now leave the custody of the Mates Muster Rolls.

Not done now. Everything is done in the morning of the distribution. R. P.

The muster-rolls are to be written up daily by the Mates and are to be made over to the Jamadars, who, after verification, will take them to the officer in charge. From the muster-rolls the wages for the day will be made out. During the evening the amount of each gang will be calculated and placed in a small bag marked with a corresponding number. Ten of these will be placed inside a corresponding large bag, and the entire wages of the charge having thus been allocated, the bags with the money will remain overnight in the care of the Officer-in-charge and his chaukidars. The wages will be distributed along the line of work next day under the direction of the Officer-in-charge at any time he may select. Special rules for the method of distributing wages have been drawn up. The Officer-in-charge should arrange for his own chaukidars; if possible a small police guard should be obtained. The Civil Officer of the district will arrange for the necessary supply of copper coin and small silver coin. Early information regarding probable requirements should be given him by the Officer-in-charge.

Payments should be made daily as a rule.

The coolies should begin work at 8 A.M. during the cold weather months, and should close work at 5 p.m. Two hours should be allowed them in the middle of the day for cooking their food, etc.

The Executive Engineer should arrange that the staff of a charge and its full equipment are on the site of any new work which it is proposed to open, at least two days before the date of opening, and the work should at once be set out over a length of 4 miles. The limits of each gang should be marked out and indicated by a white flag. The necessary lock-spitting can be done by the famine workers on arrival.

Regarding classification, it should be remembered that all famine relief workers should be excluded from the A class. They will usually be B or D class. The Officer-in-charge must give special attention to the posting of the coolies as they arrive to their several gangs, and to their proper registry and classification in the muster-rolls.

Inspecting officers should examine and compare as many of the muster-rolls as possible, with a view to checking the numbers present with each gang, their classification, and the amount and cost of work done by them. A discrepancy should be enquired into on the spot, and the necessary orders given at once to the Officer-in-charge.

When the land bordering the road is valuable, it may be necessary to reduce the width of the side cuttings. In such cases the excavation should be correspondingly deepened, the prescribed frontage being always adhered to. With this view the side ditches may be given any depth up to 4 feet. This would allow of a width of about 8 feet for the side cuttings. Waste land near the road should be utilized for spoil where possible. When compensation has to be paid for land taken up for cuttings, the necessary arrangements should be made as usual by the District Engineer with the Civil Officer of the District. The best and simplest plan is to arrange, if possible, for a small direct payment being made to the owner of the land in consideration of his registering a *razinama*, giving permission to take possession of the land in question.

In addition to the petty establishment above authorized, 1 blacksmith and 1 carpenter should be provided for each charge, for the repair of tools, etc, at ordinary rates of pay.

I now give a chaukidar on the pay of a beldar to each Jamadar, who looks after the equipment of the ten gangs at night. This prevents the gangs having to go long distances before and after work to get and hand over their tools.

EQUIPMENT.

The following will be the Equipment, Tools, and plant, etc., required for each charge.

Number required.	Name of Article.	Rate.	Amount.	Remarks.
1	2	3	4	5
		Rs. A. P.	Rs. A. P.	
1,000	Phaurahs	@ 0 12 0 each	750 0 0	
100	Picks	@ 1 8 0 „	150 0 0	
10	Axes	@ 0 8 0 „	5 0 0	
5,000	Baskets	@ 4 0 0 per 100	200 0 0	
100	Flags, white	@ 0 2 0 each	12 8 0	
10	Flags, red	@ 0 8 0 „	5 0 0	
1 Maund	Munj string for setting out work.	@ 10 0 0 a md.	10 0 0	
3	50′ Tapes	@ 4 0 0 each	12 0 0	
10	10′ Rods	@ 1 0 0 „	10 0 0	
3	8′ × 10′ Pals	@ 35 0 0 „	105 0 0	
1	Treasure chest	@ 50 0 0 „	50 0 0	
10	Bags, large, of canvas, numbered 1 to X for wages.	@ 1 0 0 each.	10 0 0	
100	Bags, small, of kharwa cloth, numbered 1 to 100 for distribution of wages.	@ 1 0 0 for ten.	10 0 0	
1 Seer	Twine for above	@ 1 0 0 a seer	1 0 0	
200	Kerosine oil tins, 2 per gang	@ 0 4 0 each.	50 0 0	
10	Iron buckets drawing water ...	@ 1 0 0 „	10 0 0	
400	Shelter frames 6′ × 4′, ½″ thick, 4 per gang.	@ 0 4 0 „	100 0 0	
10	Badges, large	@ 0 8 0 „	5 0 0	
100	„ small	@ 0 2 0 „	12 8 0	
100	Muster-roll tins ...	@ 0 4 0 „	25 0 0	
	Permanganate of potash ...	Lump sum.	5 0 0	
5,000	Cardboard tickets			
	Stationery, to include pens, ink, note-books, etc., for Jamadars, Mates, etc. ...	.....	10 0 0	
	Total Rs. ...	.....	1,543 0 0	

INSTRUCTIONS BY THE SUPERINTENDING ENGINEER, II CIRCLE, P. W. D., NORTH-WESTERN PROVINCES, REGARDING PAYMENT AND DISTRIBUTION OF WAGES ON FAMINE RELIEF WORKS.

As a rule wages should be paid daily at 12 o'clock noon according to muster rolls taken between 2 o'clock and 4 o'clock on the previous day.

There is no necessity for the officer in charge to carry out with his own hands each and every one of the operations connected with the distribution of money into the bags belonging to the several gangs. Some officers whom I have seen have sat up till a late hour counting the money and placing it in the bags. This is waste of power. The ordinary practice is for money to be sent out from the Civil Treasury either in boxes containing pice done up in bundles containing 32 pice each or in bags containing 50 rupees worth of silver and copper. In any case if this is not so, the first thing for the officer in charge to do is to have the money, on arrival in his camp, counted out before him and made up into bags of Rs. 50 each. The next step is for him to call up the Jamadar Munshis of his charge and the two work agents, each of whom is responsible for and has charge of 5 Jamadar parties containing 10 gangs each. This should be done at 9 o'clock of the day on which the wages are to be distributed. Each Jamadar should have his *Goshwara* or abstract of the money due to each of his gangs calculated from the muster roll of the day before. Ordinarily the wages due to a gang will not be more than Rs. 5, and the total wages due to a jamadar's party of 10 gangs will not be more than Rs. 50. One bag, therefore, of Rs. 50, already prepared as above, will ordinarily suffice for one Jamadar. Each Jamadar should therefore be given one of these bags of Rs. 50, and he should be told to distribute it into his gang bags according to the amounts set forth in the *Goshwara* or abstract of the day. When he has done this, each Jamadar should have in his hands a balance equal to the difference between the Rs. 50 and the total of his 10 gangs. If this is so, all the officer in charge has to do is to check the balance and take the receipt of the Jamadar, which should be entered at the foot of the abstract itself. The 10 small gang bags should now be put into the large Jamadar bag which should be tied up. If the distribution is to be made next day, the bag should be sealed and placed in the charge of the Treasury Guard. As a rule, however, the distribution of the money into the bags should be done on the morning of the day on which the wages are to be paid out. This is the second step. The third step is the distribution of the money in the bags to the mates. The Jamadar should take his big bag containing the 10 small ones to some central point of his party, and should there assemble his 10 mates. To each of them he will then give his corresponding bag of money. From the *Goshwara* he can see how much each mate ought to have in his bag, and he should therefore, when giving each bag to each mate, tell him what ought to be in the bag, then make him open the bag, count the contents, and if correct, make him sign for the amount, opposite the number of his gang in the *Goshwara* abstract. The money is now ready for distribution, the Jamadar has acknowledged and signed for the wages of his party, and the mates have counted, acknowledged, and signed for the wages of their gangs. This being done, the mates should be sent to their respective gangs where their flags are ; and on arrival there should collect their gangs, make them sit down, and at once distribute the wages in accordance with the muster roll of the day before. On works in which there is an interval for rest from 12 to 2, it should be a standing order that the gangs assemble on their respective flags at 12 o'clock, and there await the arrival of their mates. In any case the time fixed for the distribution of the wages amongst them should be 12 o'clock. The hours for beginning and stopping work should be intimated by some form of drum, gong, or bugle. The money having been distributed, the mate should remain at his flag until the Jamadar in charge of the party comes round. At each gang he will check the distribution which has just been carried out, should ask if there are any complaints of non-payment or short payment to any of the coolies present. He should then check the balance, if any, which remains over after the distribution. The reasons for a balance should be enquired into and noted. If the balance is due to absence of any coolie, his name should be taken down with the amount due to him, and should be entered on the back of the *Goshwara*. All such balances should be collected at once by the Jamadar, and after he has visited and verified the distribution of wages amongst his 10 gangs, he should proceed to the head-quarters of the officer in charge, whose coming he should await. The officer in charge will, on arrival from the work where he has been supervising the distribution of the wages, take each jamadar's account, place any balances in his treasure chest, and enter in a book kept for the purpose the details of the coolies who have not been paid. The money thus put aside should be kept as a separate account, from which he will pay any of the absentees who may come to claim their wages. Under ordinary circumstances it will be easily possible, if the above system is carried out, to pay wages to all the coolies of a charge every day before 2 o'clock. Finally, the wages having been distributed, the mate should take the muster of the people present, and should then communicate the abstract to his Jamadar for entry in the daily *Goshwara* form. These abstracts are then made up by the Jamadar by the end of the day, and everything is ready for the work of distributing the wages into the bags, as above explained, next morning. The muster rolls should always remain in the custody of the mates. In cases where a mate is unable to read and write, he must be assisted in the work of registering and distribution by his Jamadar.

Lucknow, the 24th December 1896.

C. E. G.—Reg. No. 7138C—1,206—6-2-97.

No. 420M.P.I.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT.

FAMINE RELIEF WORKS.

THE following rules and orders are issued for the guidance of officers employed on relief works conducted under the provisions of the Famine Code and carried out by the Public Works Department. They are the outcome of the experience gained by the Government of the North-Western Provinces and Oudh in recent famine operations in Bundelkhand, as published in Resolution No. 18P.W., dated Allahabad, 5th December 1896, by that Government, and their adoption on the relief works now being carried out in Bengal by the Public Works Department cannot fail to be of the greatest benefit. They should be carefully read and studied by all officers who have to do with Famine Relief Works.

By order of the Lieutenant-Governor of Bengal,

J. G. H. GLASS,

Secretary to the Government of Bengal.

CALCUTTA;
The 25th January 1897.

THESE instructions are for guidance in conducting in the field relief works under the Famine Code in tracts officially recognised as distressed. They are not applicable to works conducted by the Department of Public Works as ordinary works under article 52, Famine Code, or as test works undertaken in districts or tracts under observation but not officially recognised as distressed.

2. The backbone of all large relief works must be earthworks, and in their selection certain points call for special attention. An ever present difficulty is to find work enough for the undue proportion of carriers that crowd on to a relief work in the shape of weakly men, women and children; so that the longer the 'lead' of earthwork is, the less ineffective are the results, and the more economically is the work done. It is often most difficult for the organization to control the labour, especially when one of the unexpected rushes occur, of which we have had such frequent examples; so that the more the work is concentrated, the better it can be looked after.

3. The work which has to be done in the field may be conveniently considered under the several following headings, which are placed more or less in the order in which they will call for attention:—

I.—Establishment.
II.—Tools and baskets.
III.—Funds and supply of coin.
IV.—Drinking water.
V.—Food.
VI.—Field hospitals.
VII.—Hutting.
VIII.—Conservancy.
IX.—Organizing relief labour. The gang.
X.—The task. Setting out work and getting it done.
XI.—Wages.
XII.—Reports and accounts in the field.
XIII.—Checking work, numbers and payments.

I.—ESTABLISHMENT.

4. Each district in which relief works on a large scale are to be carried out will be formed into a Public Works Division, and there will be an Executive Engineer in charge. The district will be broken up into as many subdivisions as may be necessary according to the requirements which have to be met. The subdivision will usually be held by an Assistant Engineer, and the number of

upper and lower subordinates attached to it will be determined on a consideration of the relief works which have to be undertaken. Any number of workers, up to 5,000, or at the outside 6,000, will form a 'charge' and will require an 'officer-in-charge,' whose duties are described in article 59 of the Famine Code. If the numbers on a work exceed 6,000, an additional work should be commenced without delay; another part of the same road may suffice, but it *must be* a separate "charge." If the 'charge' contains less than about 3,000 workers, it will be sufficient to give him one sub-overseer, or work-agent, to help; but if there are more than that number, he must have two such men.

The duties of the 'officer-in-charge' are of a responsible nature, and it is essential that he should be a person in whom complete confidence can be placed. He will usually be appointed by the Commissioner of the Division, and his services will be placed at the disposal of the Public Works Department and he will be posted by the Superintending Engineer on the indents of the Divisional Engineer. He will be the cashier and general supervisor on the spot, and one of his duties is to see that work is really done, or else proper fines actually recovered for short work. It is to be distinctly understood that he is under the orders of the Public Works Department.

5. It is the duty of the sub-overseers to lay out work in advance, to have profiles ready where necessary, to measure up the work done by each gang of workers, and to assess the requisite fines for short work in the manner explained further on. Where there are two or more such men, one of them has to look to the setting-out of work ahead, and the other to the proper finishing up of it behind the gangs. One of them is put in charge of all tools on the work. The men will be posted by the Superintending Engineer on indents from the Divisional Engineer, whose duty it is to regulate his indents in accordance with the probable number of workers, and to apply a fortnight in advance of requirements, wherever that is possible, so as to have the officials on the spot in time to prevent the organization being overpowered by a rush of relief workers. When no more Public Works sub-overseers are available, suitable men of the class of overseer, or sub-overseer should be temporarily engaged by the Superintending Engineer on a salary of Rs. 50 to Rs. 65 per month on the terms stated in the form of appointment put in as Appendix VII. The Divisional Engineer should keep a list of any suitable local men he can hear of, and appoint them as occasion arises, reporting each such appointment to the Superintending Engineer, with the information required for the purpose of filling in the appointment form in the Superintending Engineer's office.

6. When there are only three or four separate charges going on in a district, the Subdivisional Officer can look after them himself; but when there are more than that number, he will require the assistance of an Inspecting Officer of the standing of a Public Works Upper Subordinate, whose services will be obtained by an indent from the Divisional Engineer on the Superintending Engineer. The Inspecting Officer will act under the orders of the Subdivisional Officer, and it will be his duty to go round his parties in succession, spending three days with each when possible, to correct all faults in organization, to check the numbers and payments, check the quantity of work and look into its quality, and also assist in aligning new work, or anything else the Subdivisional Officer may require help in. When it is impracticable to depute a Public Works subordinate for these duties, a temporary Inspecting Officer will be appointed by the Superintending Engineer, ordinarily on a consolidated salary (including travelling allowance) of Rs. 150. These principal officials require the Superintending Engineer's or higher authority for their appointment. The minor ones necessary for each 'charge' may be appointed by the Subdivisional Officer, and he should therefore make his own arrangements for them. He should keep a list of candidates and may have two or three men more on his works than is absolutely necessary, with the twofold object of getting them into training and having them at hand when wanted.

7. Every 'charge' requires the following minor establishment:—

'One vernacular clerk qualified to act as sub-cashier under the officer-in-charge. He will ordinarily be appointed by the officer-in-charge, who is responsible for him. Salary, Rs. 15 to Rs. 20.

One clerk who can keep accounts in English. May best be appointed by the officer-in-charge, whose assistant he will be. Salary, Rs. 15 to Rs. 20.

One disbursing vernacular clerk (called gang *muharrir*) for about every 1,000 relief workers. These should be reputable men known to some local official as being trustworthy. When wages are paid bi-weekly a *muharrir* can register and pay 1,400 persons. Salary, Rs. 10 to Rs. 15.

One tools *muharrir*. Salary, Rs. 8 to Rs. 12.

The duties of the first two are obvious, they are assistants to the officer-in-charge. The gang *muharrirs* calculate the wages and do the greater part of the actual counting out and disbursing of wages, each for his own gangs. The tools *muharrir*, or store-keeper, has immediate charge of the tools under one of the sub-overseers, who is responsible for him and should make the appointment.

In addition to these there has to be a foreman of the water arrangements. Salary Rs. 12 to Rs. 18 per month. Two or more 'mates' on daily wages under him. An experienced 'mate' or '*tindal*' for nicking out the work set out by the sub-overseer or work-agent. His gang of 10 to 20 men should all be intelligent professional labourers, accustomed to that sort of work and paid as Class B. There must also be a *jamadar* of sweepers in charge of the sweeper gang.

II.—Tools and Baskets.

8. For [every 1,000] attendants on a relief work, including both workers and their dependants, a supply of 120 digging tools and a first outfit of 600 baskets will be required. The digging tools will ordinarily consist of 10 to 20 per cent. of pickaxes or *kodals*, and the rest *phaorahs*. The proportions of these tools will vary greatly with the nature of the soil to be dug. It is impossible to give any general directions on this point, and the Divisional Engineer must see to the right kind of tools being provided for the work that has to be done. Ample provision requires to be made for keeping up the supply of baskets, and clear instructions in regard to the sufficient supply of these articles should be issued by the Executive Engineer.

9. It sometimes happens that the people rush on a relief work in the most unexpected manner, and 9,000 or more people may be present on a work four days after it is opened and before there is time to start another one, or get tools. To provide against such accidents, every new work should have a supply of tools for 10,000 persons when it opens. If a rush occurs, it can be met and there will be time to draft off the surplus numbers with a supply of tools, &c., on to a new work opened for the purpose with the Collector's sanction and assistance. If there is no such rush during the first ten days or so, tools for 6,500 persons should be kept on the work and the balance sent to any new work about to open, or any other work which may be in want of them at the time. In every case a newly opened work must open with tools enough to give employment to 10,000 persons (including dependants) in case there is a rush. This is never to be omitted.

10. In all road and embankment work large numbers of wooden *thappis* for breaking up clods will be required: a supply of 4,000 *thappis* should be ready to start with. These will require to be of the pattern in local use, but rather light, and should be made up in advance on the spot or wherever most convenient to start with A small gang of carpenters should be employed on every work to keep up the supply of these and of tool handles of which lathi a supply of 3,000 should always be on hand.

III.—Funds and Supply of Coin.

11. The credit order is obtained in the usual way, and the problem is to keep the different relief works in funds on the spot without a very large floating balance in process of transit. An imprest of over Rs. 1,000 is forbidden; it is therefore of no use to give the officer-in-charge an imprest on any large

work. He must keep a cash-book, but he may not have a separate credit in the treasury. The following method of keeping the relief works in funds has proved very successful and economical.

12. The Divisional Engineer in consultation and with the help of the Collector should select two or more sub-treasuries as paying centres, and arrange that the official in charge shall cash cheques sent him in his name, but for certain pre-arranged officers-in-charge of relief works. The Subdivisional Officer should himself start each work and keep the officer-in-charge in funds while there. A few days of open work will show how things are going. When leaving the work, the probable expenditure for the next week should be computed, and the officer-in-charge given enough money to keep him going for that time. After that a watch on his daily reports should be kept, and before he is out of funds, his expenditure for the next week should be calculated and a cheque for the amount sent to the sub-treasury officer in the name of that officer, but endorsed 'for' the officer-in-charge to whom the money is to go. The sub-treasury officer cashes the cheque and sends the money under guard to the officer-in-charge, who enters it in his 'cash-book in the usual way.

13. Each 'charge' will require one iron safe about $2\frac{1}{2}' \times 1\frac{1}{2}' \times 1\frac{1}{2}'$ high. There must also be two wooden chests, iron bound and tin lined, with two hasps and padlocks. Size of chest, $2\frac{1}{2}' \times 2' \times 2'$ high. One of them remains on the work and holds the pice, the other is used in transporting money from the treasury. If the chest is not tin lined, the pice fall through the cracks which occur in green wood.

14. At least three weeks' supply of copper coin should be available in local treasuries to begin with. At first it will mostly soak into circulation and disappear, but after a short time it will begin to flow back in exchange for silver; and after the works have been going for six or eight weeks, the rupee will be at a premium, and Baniahs will give something more than 16 annas in copper for the silver rupee.

IV.—Drinking Water

15. To keep this pure it is necessary to guard the wells from contamination for some days before a work is started. Select some respectable, cleanly man of good caste who can be trusted to attend to the business, and make him foreman of the water arrangements. He must have four or five Brahman mates, a Kahar mate, about 20 Kahar carriers, and the same number of Brahman drawers and distributors under him. He will require about 10 iron buckets (*dóls*) of the country shape (with a round bottom) for drawing water, and about 60 kerosine tins for carrying water. This will probably be enough to commence with, but the proportions will of course differ with the distance of the wells from the work; and in any case the staff and plant will probably have to be increased at one time or another.

16. The kerosine tins require to be strengthened with an iron strap under them and a handle for carrying about. Half of the top should be cut away and hinged on again to prevent water splashing out. The water foremen should take possession of all wells close to the future work a week or so ahead of the workers, and at once put each in charge of a Brahman with one or more assistants, and arrange so that these men shall draw water for any one who requires it: but they must *allow no one else to do so*, or even to come on the well platform. From that time till the workers leave the locality each such well should remain in charge of the same set of men, and they should never allow any other person to dip a *lota* into it, or to stand on the platform. The rigid preservation of the purity of their water-supply is one of the very few sanitary measures which the people will heartily approve of, and in which they will assist so far as they can do it without taking trouble.

17. The actual distribution is most readily effected by utilizing the old established method of setting up *piaos*, or drinking places, at short distances apart. A large earthen jar, called a *gol*, is purchased for three or four annas and set up, a little aslant, on a low mud platform. By the side of it a narrow trough some five feet long is set up on two stakes, with a slight slope through

it and the further end about two feet above the ground. It is important to take care that this trough shall always be of iron, never of wood.

18. The jar is filled from the kerosine tins (earthen *ghárás* must never be used for carrying water in) by the water Kahars, and by them alone ; no one else may touch it. By the side of it sits the distributing Brahman, and when any one comes for water, he fills his brass pot, or *lota*, and pours water into the man's jar, or pot, by means of the trough. He must never pour directly into any man's pot or jar, but always into the trough and thence into the jar, placed below the trough and filled from it. It is important to have the trough well above the ground, so that it may not be touched by the jars or splashed from them. It is important to have the trough of iron, because if it does happen to get infected, it will, what with rust and heating in the sun when dry, almost certainly disinfect itself very soon after. The great jars, *gols*, should never be carried on to a fresh place, but should be broken up, and new ones used at each new *piao*. One such *piao* should be set up at every second furlong stone along a relief work.

19. If there are more wells than need be used, the unused ones should be guarded to keep off the workers, and so also with doubtful or tainted wells. If wells are miles apart and a doubtful one has to be used, it should be disinfected with permanganate of potassium according to Professor Hankin's instructions reprinted as Appendix II. So also if cholera should break out. If water has to be carried a long distance, it will be found best to carry it in casks fitted with brass cocks and loaded two in a cart. Wells should always be drawn on in preference to tanks, if within a practicable distance. All this organization about the water-supply may seem to involve a great deal of trouble over a small matter, but a neglect of it will have sure consequences where large bodies of people are collected together, and especially when they are famine stricken people. These precautions are of vital importance to the public health.

V.—Food.

20. It is desirable that the quality of the food supplies brought to the works should be looked into very frequently, and immediate action taken against any one found selling unsound food. The food trade on a full sized famine relief charge is greater than that in any ordinary small Indian town, and if special facilities are given to respectable local traders, they will be careful not to lose them by selling unsound food, or worrying the people with needlessly frequent changes in their prices. Following the principles of article 80, Famine Code, the undermentioned advantages can be offered, among others, in exchange for fair trading :—a small grass hut for a shop situated near a *piao*, and within the range of the treasure or other guards free carriage of grain from the nearest mart, if the trader is willing to sell at the current rates of that mart ; prompt and free exchange of all his copper into silver paid into the local treasury to his credit. It is usually quite easy to find several respectable men who can understand the value of such advantages to their trade, and are willing to give honest goods and reasonably steady prices in exchange for them, so long as they are pretty closely looked after.

But it may occasionally occur that a relief work is situated in such a remote locality that private traders are unwilling to go there without other inducements than those noted above. In that case, or in similar exceptional cases requiring exceptional treatment, the Collector of the district would be justified in contracting with a grain dealer for the supply of grain on the works for a stated period and on terms to be mutually agreed upon.

VI.—Field Hospitals.

21. Assistant Surgeons or Hospital Assistants are deputed to these works by the Inspector General of Hospitals, and their arrangements are looked after by the Civil Surgeon of the district. It is the business of the Public Works to construct field hospitals at sites selected by the Civil Surgeon, and on a plan approved by him. The plan must be as simple as possible, and so arranged that the whole can be burnt down when the structure is abandoned for a fresh one; while at the same time there must be provision for the patients to get quickly out of the enclosure if it catches fire while in use. This will be secured by forming one side of the enclosure of a mud, or clod, wall with a gateway in the middle, and kept quite clear of hutting. The other three sides

may consist of huts; but if the enclosure is entirely surrounded by hutting, the occurrence of a fire will lead to many patients being burnt to death. All the grass hutting should be whitewashed with a thin mixture of lime and clay.

22. There must always be a spare hospital ahead of the one in use, so as to be ready for an epidemic. An abandoned hospital must be immediately burned to the ground. If it has held patients suffering from any epidemic disease, the site of the burnt hospital should be sprinkled over with about six cubic feet of quicklime sifted evenly over it, and the whole then well sprinkled over with water enough to wet the lime thoroughly.

23. Sufficient attendants, carriers and others should be supplied to the hospital assistant or other officer in medical charge according to the scale laid down by the Civil Surgeon in each case. Relatives of patients should not be allowed to swarm round them, and only so many admitted as the Civil Surgeon directs. No other relatives than those admitted under the Civil Surgeon's regulations should be given even a famine minimum wage so long as they idle at the hospital in pretended attendance on a patient. The hospital water-supply should be worked by its own staff, and not in conjunction with the general supply for the relief workers. This is an important point and it will require some insistance to keep the two quite separate.

VII.—Hutting.

24. The workers will ordinarily require no shelter excepting in the hot months and in the rains. There seems to be nothing better on a large scale than screens about 6′ long by 4½′ wide, made of very open bamboo trellis work, strongly tied and thatched with about 1½″ thickness of any thatching grass available. These screens, either in the open or on the side parts of a road under construction, make suitable shelters.

The people are very ingenious in improvising shelter with such screens, and two screens will shelter six to eight persons, counting in little and big. Every work will have a number of men who can be profitably employed in making the screens. The question should be well considered and all due arrangements made: but the actual provision of shelter should be carefully kept down to the lowest requirements, as it is very easy to waste a great deal of money in providing an unnecessary amount of shelter, which the people will absorb and waste to any extent so long as they have not to pay for it. When shelter becomes necessary the screens must be given out to mates of gangs.

25. Every effort will be made to procure tents enough to shelter the officials connected with the works, but there will be many left unprovided for. These should be hutted in small grass huts with the walls plastered with mud on the inside, and all other surfaces whitewashed, both inside and out, with a thin wash of clay and lime, in about equal proportions, as a protection against fire. An experiment with a bundle of coarse thatching grass washed in this way will show the men what an effective protection it is. The huts should be 9′ × 6′ with the ordinary pent roof, and made in sections so that they can be readily dismantled and re-erected, and easily carried in an ordinary cart, or by coolies The whitewash and the mud plaster should be renewed at intervals. The sides need only be 4′ high; any extra height wished for can be got by digging out the floor. The local staff of each 'charge' should be generally hutted in this way.

VIII.—Conservancy.

26. The conservancy of every hospital should be carried out by its own staff of sweepers under the directions of the officer in medical charge. For the staff there should be the usual screen and ditch, and the officer in charge should be instructed to have it well looked after for his own sake. Experience has shown that it is not practicable to make any latrine arrangements which the workers can be induced to use. The most that can be done is to post a few stalwart men, of some rather domineering class, such as the Thakur, under a competent mate of their own class, to insist on the workers going at least 300 yards off the work in their morning walks. They should generally go to the east of the work, but if there is a village near on that side they should be made to go in the other direction. The Police cannot be spared for this work or advantageously employed on it. It is of great importance to the health of the workers, and if worried into it for a short time they at last accept it as an admitted custom (*dastur*), and give very little more trouble about it. Any officer in charge who will take the trouble can enforce the system and keep it going.

27. There must always be deaths on these works; if unhappily an epidemic should burst out, there will be numerous deaths, and the disposal of the dead is a matter that must be attended to. The workers will not attend to it properly: in general, they have not the means. They will bury a body just under the surface, or they will singe it and throw it into any accessible running water. At every three or four miles of a relief work there should be a burying place for Hindus, and another for Muhammadans. The two places should, if possible, be on some locally accustomed spot; they should be far apart, and neither should be near a village, nor within half a mile of the work. Each should have a very small appropriate staff.

At the police guard or other convenient place, there should be arrangements for the burial, free of charge, of every Hindu body which friends do not bind themselves to burn or otherwise dispose of. For the Muhammadan cemetery there should be one or two grave-diggers, preferably of the *gorkand* class, who would keep a certain number of graves ready dug. The graves should be not less than 5 feet deep, and the dead should be completely and decently covered in. Unclaimed bodies should be taken charge of by the police and buried.

28. If this organization is got into train from the first, it will be ready against the occurrence of an epidemic, and it can then be extended to any required extent. But if a skeleton organization is not ready, then it cannot be improvised in the rush of an epidemic, and corpses will be thrown into every adjacent stream or *nullah* or left lying about in the fields.

IX.—Organization of Relief Labour. The Gang.

29. The classification of the workers is given in article 62, Famine Code, and may be paraphrased as follow:—

A.—Able-bodied professional labourers accustomed to the kind of work they are engaged on.

B.—Able-bodied labourers, but not accustomed to that kind of work.

C.—Able-bodied persons who are not labourers.

D.—Persons who are weakly, but still fit for light employment.

All the officials in charge of a relief work are working under pressure; and any unnecessary addition to their work reduces the stock of time and energy available for useful work. If he does his duty, the most harassed man of all is the officer in charge, and every complexity of classification is a continual burden to him, and in a less degree to every other official connected with the work.

It is found in practice that the number of workers under class A is inconsiderable, and for that and other reasons the class need not be considered further. The vast majority of the workers are agricultural or other labourers and peasant farmers, and they rightly fall into class B. There is a sprinkling of class C. These persons are very largely utilized in the miscellaneous employments in connection with relief work, where they rightly receive the wage of class B, or in some cases a small addition to it; and the remainder is too small to classify separately. There is a larger proportion of class D (weakly persons), many of whom can work up into class B after a fortnight or so of fair feeding.

Having regard to the facts of the case as noticed above, it is better to omit classes A and C altogether, and to reduce the classification to the following terms:—

Workers—Class B	...	...	Men,* women, children.
Ditto Do. D	...	...	Ditto ditto.
Dependants (gratuitous)	...	...	Ditto ditto.

It will be seen from paragraph 50 below that the scale of wages errs, if at all, on the side of excessive liberality.

30. The children have to be divided into four grades for the purpose of giving them fairly proportioned wages. The best grading is in the following terms:—

I.—Worker—age apparently between 12 and 16 years. Above 16 years counted in as an adult.

II.—Worker—age apparently between 7 (completed) years and 12.

III.—Gratuitous—not in arms and age apparently under 7 years.

IV.—Gratuitous—children in arms.

* This is for classification only; for wages see paragraph 50 below.

All children over 7 years of age are to be counted as workers, unless so crippled that there is no likelihood of their filling out and working. All children under 7 completed years of age are to be counted as "dependants on gratuitous relief."

31. The manner of starting a relief work is as follows. The officer in charge and the principal men of his staff are on the spot. The work is ready marked out, and all points of organization have been gone through with the officer in charge, who has himself spent a few days on a relief work, unless this is the first opened in the district. There should be a police guard for the money chest and to give assistance in other ways. The tools are kept in an enclosure near the work, a sort of 'zareeba' with a thorny wall or fence round it, and the storekeeper is butted in it, with his note-book of issues and receipts ready by him. Somewhere close to the tools depôt is a large red flag on a tall bamboo, and that is the place to which new comers are told to gather together as they arrive, and here the gangs are made up. The morning is full of work, and gangs are best made up in the forenoon, commencing at about 10 o'clock, and the men started on the work in the afternoon. While the gangs are being made up, the future gang *muharrirs* must be present, and also any gang *muharrir* whose numbers are very short on that day.

32. First select 15 able-bodied men fit to dig, and fellow villagers if possible, and stand them apart; then tell their women and children to stand with them; these will probably number about 50. There may, perhaps, be also one or two old men too feeble to work, who are dependent on some of the workers, and must be let into that gang. There will then probably be about 67 *persons* in the gang altogether. Count out all the children under 7 (completed) years of age as non-workers, or 'dependants,' who will receive gratuitous relief, and also the one or two very feeble old men or women who belong to some one, and are too weak to work. There will then probably be about 50 *workers*, of sorts, in the gang. Select weakly single men (still fit to work), women, or other strays (fellow villagers if possible), till the gang is made up to about 60 workers, in addition to the dependants who are unfit for work.

33. Next, select a 'mate' for that gang from among the relief workers present, and a fellow villager if possible, and make the gang *muharrir* fill up the "mate's list" on the back of the 'gang register' at once, as see paragraphs 53 and 54. It must be filled up at once by, or under the eye of, the officer in charge: the gang must be given a distinguishing number at once: and the gang number, mate's name, and muharrir to whom consigned should be recorded in the note books of the officer in charge and of the gang *muharrir* at the same time. The gang *muharrir* sends on the gang, under charge of his man, with a slip to the storekeeper to deliver certain numbers of tools, baskets and *thappis* to the mate of the gang; these he also enters in his note-book.

34. Arrivals in the afternoon will be given food in accordance with Famine Code, article 61, and will be made up into next day's gangs.

35. People once formed into a gang must not be allowed to stray into others without special permission. Mates should be chosen with an eye to position among labourers, intelligence, and ability to exercise some sort of authority among their people. During the selection of gangs it is necessary to keep in mind and provide for the requirements of the hour in the way of filling up depleted gangs, and of special labour, such as water-drawers and carriers, water distributors, conservancy patrols, sweepers, &c. The latter must be drafted into the special gangs formed for those purposes.

36. As regards 'dependants' attention is invited to articles 83 and 84 of the Famine Code. The proportion of little children and other dependants will often rise above 10 per cent. where whole families come on relief together. As regards the persons who may be admitted on to these works, see articles 61, 83 and 84. These works are not intended for persons unable to do any work and not dependant on a worker; for such there are the poor-houses. But if any such starving persons apply at one of the works, they should be fed for a day or two until an opportunity occurs of sending them on to a poor-house.

37. The gang is the basis of all organization, and it must be kept as permanent as possible. No mate should be allowed to admit any new persons into his gang of his own authority. As soon as a gang has received its tools, it must be marched on to a previously marked out piece of work, and it will thereafter be always treated as a unit. It will be drafted from one work to another, or from one part to another (as when workers are progressing along a road), as a unit, and in accordance with the procedure laid down in article 75 of the Famine Code, and with the gang registers written up to date.

X.—The Task. Setting out work, and getting it done.

38. The special gangs of water-carriers, hospital attendants, conservancy men and so forth, have their own special duties, and the practical mode of getting value from them is to take care that there are no more of them than the work requires, and that they perform their duties efficiently. But the great mass of the workers are on a different footing. If the arrangements are complete there is any quantity of work for them to do. The problem in working under the Famine Code is to find how much work they should do without being overworked, and to get them to do it.

39. Section 66 of the Code refers to its Appendix IV on the question of quantity, and the Appendix contains rules for modifying tasks in accordance with the 'lift' and the length of 'lead.' Experience has shown us this is quite unnecessary. The people must be taken as they come, and the diggers must be distributed in the proportion they happen to bear to the fillers and carriers. The fillers and carriers are usually far too numerous for the diggers, and, instead of reducing the task because the fillers and carriers may be overworked, experience has proved that it is only with a high lift and long lead that the diggers can do enough work to give them a proper amount of work. Under the system of wages laid down by the Code—and no better seems to be practicable—a man's income is very greatly increased by bringing all his women and children on to the works. As a rule, then, it is safe to omit all calculations as to lift and lead in any work done by famine labour under this system of wages.

40. The problem is thus very much simplified. The task depends entirely on what the digger can excavate; whatever that quantity may be, there will always be enough fillers and carriers to dispose of it. From this it follows that the effectiveness of the whole gang as an instrument of labour depends entirely on the effectiveness of the digger, and on him alone. If the digger gives a good day's work, the whole gang has to do the same; and if he idles, no possible industry on the part of the remainder can make up for it. It is therefore only necessary to consider the quantity of work which a digger may be fairly called on to do, namely, the 'task,' and how to get him to do it.

Appendix IV, Famine Code, gives very fair tasks for men and women of classes A and B, and for men of class C. But under the system of classification now adopted, these tasks require some re-arrangement, and the following table is accordingly prescribed:—

Table I.—Task Work.

Excavation only—For diggers, men of class B.

Soil.	Daily task in cubic feet.		Remarks.
	Full.	Low.	
1	2	3	4
Soft earth or sand	200	170	In the rare cases when a woman works as digger she should have a $\frac{3}{4}$ task.
Medium earth	130	100	
Hard earth and clay	85	65	

41. These are the tasks to be exacted. The task is in each case to be fixed by the Subdivisional Officer under the instructions of the Divisional Engineer. When a gang is first started on work, the low task for that kind of work is to be taken from the diggers, and it is to be gradually raised in a fortnight or so to a suitable task according to the soil and the strength of the workers. The full task is the ordinary one to be adopted. More may be obtained under favourable conditions, but these figures have been adopted as a safe limit which it would not be harsh to enforce by fines. The low task may be adopted under unfavourable conditions, climatic or otherwise. If less than the low task is ever allowed, the fact must be reported by the Divisional Engineer to the Superintending Engineer, with full reasons for permitting the low task to be reduced. If the Collector of the district considers the task unsuitable, the Subdivisional Officer will alter it on receipt of written orders to that effect from the Collector, but he will at once report the alteration to the Divisional Engineer and forward the Collector's order to that officer in original.

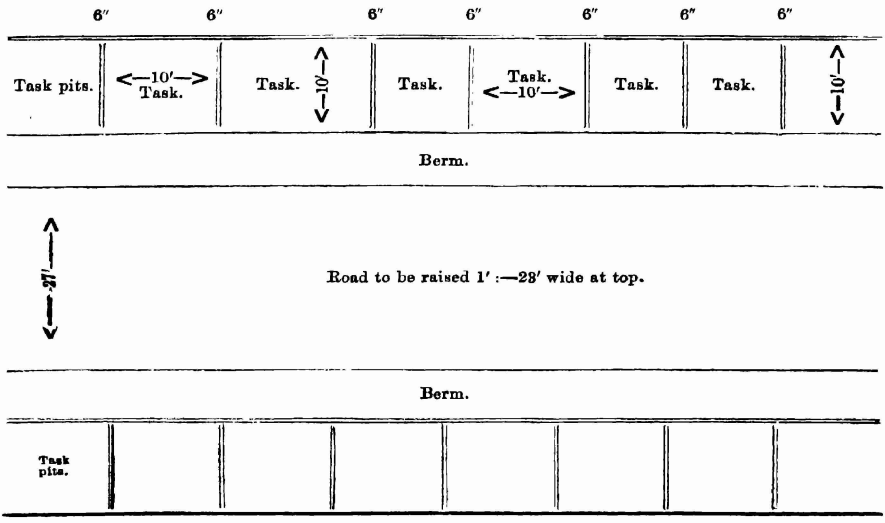
The Divisional Engineer will forward the report to the Superintending Engineer for communication to the Chief Engineer.

42. The method on which the tasks are worked is the secret of success. Every task should be marked out separately, and the gang mate made to give one out to each digger overnight. The digger may then commence work at any hour he likes, and *must be at liberty to go off work as soon as his task is finished.* He must not be kept working at a portion of a general task, or at finishing up another man's. He then feels himself responsible for a certain piece of work, and knows that he may go, certain of his wage, as soon as it is done. A gang task marked out *en bloc* will never be done. The idlers have no individual responsibility brought home to them; and those who would work are demoralized by their example, and disheartened by having to do other men's work. Give every man his task, and his wage for doing it. Fine him for default, if necessary, according to the fine scale of paragraph 51 below.

43. All laying out of work should be planned with two objects as regards the workers: (I) to give every man an individual task; and (II) to give every worker at least three days' work in one place before having to march on to another reach. This also prevents overcrowding the workers. To take an example. Suppose a road 23 feet top-width, to be embanked 1 foot in light sandy earth, by gangs with an average number of 15 diggers each, and doing a task of 200 cubic feet. Then 120 lineal feet of road embanking will give a gang one day's work, and a gang to every 480 feet will give them four days' work before they need shift on. Taking a gang as about 80 persons, all sorts, this will spread a 'charge' of 5,000 persons over a length of nearly six miles. One gang to every 500 feet is a very good general rule to follow.

44. Laying out work on a road is simple enough, and should be done well in advance of the workers. The setting out consists of two parallel lines for the embankment, and outside these two more such lines on each side to mark the pits. The distance apart of these last lines is of considerable practical importance, and should be such that pits of either 1′ or 2′ depth shall give a little more earth than is required for the road. The individual tasks are marked out by cross cuts between the pit lines, an interval of 6″ or more being left between every two tasks. The example of road given in the preceding paragraph would be marked out in the way sketched below, which will give just enough earth from task pits 2′ deep, and the tasks will be 200 cubic feet each.

Lining out a road into tasks.



45. With work laid out in this way there is no necessity for measuring up to know whether the tasks are done or not; a glance at the pits tells that. If nearly all the pits are completed, the mate and every man in the gang knows who the defaulters are, and it is best to fine only the men who have incomplete tasks, and to fine them only one to two pice each for the first week or so of a

gang's existence. A few days later the mate should be fined as well; and if the deficiency still goes on, the whole of the diggers in that gang should be fined. It will be found that the idlers either reform themselves, or leave the gang of their own accord. If the majority of the diggers have been slack in their work, they should all be fined for it, and the mate as well. If the deficiency in their work has amounted to over 20 per cent. of the whole gang's tasks, all the adults and the mate should be fined. If individual tasks have been marked out, this will soon bring about a reformation, for nearly all the women are relations of one or other of the diggers. The mate should be dismissed if the work of his gang continues to fall short of the task, after repeated warnings.

46. At the rear of every relief 'charge' there should be a finishing gang, one that has shown it has learned its work well and is under an intelligent mate. It will be the duty of this gang to properly finish up all irregularities left by the less skilful gangs in front. No particular task can be set for them, and the work very largely depends on the mate in charge, who should be a professional *tindal* on a monthly wage. The whole appearance of the work, when finished, depends on this part of it being properly attended to.

XI.—Wages.

47. The wages prescribed after long experience and careful observation are laid down in Articles 101 to 106, and section 104 prescribes a scale of wages based on "grain equivalents," which is to govern the cash wages paid on these works. There are different scales of wages, and in making a selection several points have to be considered. Special care must be taken that the joint wages of a family, while sufficient for subsistence, shall not be greater than unskilled labourers can earn elsewhere. Otherwise, all labour will be attracted from other work on to the relief works.

48. Each unit should have enough to live on without more than the unavoidable margin caused by making the standard for each class high enough for nearly every person in that class. The *minima* wages of Article 104 provide this, erring, perhaps, on the side of liberality. But the work must be done, and its being executed depends entirely on the digger. The diggers are in such a small minority that to keep the others in work they must work fairly hard, and they will not do this without reward. Experience has shown that if the digger gets only the *minimum* wage he reflects he could get as much in any case, and he ceases to work. If he is paid only a very little above the *minimum*, he does not think the difference worth working for. Experience shows that for a difference of something over two pice he is willing to work fairly, and also that the hard worker requires that much more than the others, for additional food to keep up his strength.

49. On these considerations all ordinary workers should be paid the subsistence wage; diggers and those employed in special gangs may get the *maximum* wage of class B; and mates of gangs, with such other men in responsible work, whom the Subdivisional Officer considers require it, are to be paid two pice more than the diggers. The wages of the workers are to be regulated by the scale of grain equivalents prescribed in section 104 of the Famine Code. These equivalents are to be converted into money on the basis of the current retail price of the staple grain in ordinary local consumption by the labouring classes and in the state, husked or unhusked, in which that grain is ordinarily sold by retail for consumption.

50. The following scale will therefore be used :—

Mates of gangs and other person in responsible posts.	Six pies more than a digger.
Adult males, workers. Diggers and men in special gangs.	Nineteen *chitaks* of grain.
Adult males—Other workers, all classes	Fourteen *chitaks* of grain.
Woman* diggers	Sixteen *chitaks*.
Adult females, not diggers—All classes...	Thirteen *chitaks*.
Male adult dependants	Twelve *chitaks*.
Female dependants	Ten *chitaks*.
Working children, grade I—Over twelve and under sixteen years.	Ten *chitaks*.
Working children, grade II—Over seven and under twelve.	Six *chitaks*.
Non-working children, grade III—Not in arms and under seven years.	Three *chitaks*.
Non-working children, grade IV—Infants in arms.	One pice extra to the mother.

* Classed as B, but not given quite the maximum wage.

If the exact money equivalent of the preceding grain wages exceeds the nearest pice below by two pie or more, the next highest pice will be given. If the exact sum exceeds the nearest pice below by less than two pies, the next lowest pice will be given.

51. Workers who fail to perform the allotted task may be punished as follows:—

(*a*) by fine, provided that the grain ration (or its money equivalent) paid as wages shall not be less than the penal ration prescribed in section 100, Famine Code; or

(*b*) by payment as wages of the penal ration in cooked food at a State kitchen established on the work; or

(*c*) by removal from the work and sending them to the nearest poor-house.

52. Wages are to be fixed by the Executive Engineer in consultation with the Collector. They are not to be altered for variations of less than 10 per cent. in the price of food-grains. Excepting in case of urgent necessity, which should be immediately reported, they are not to be altered without previous reference to the Commissioner. It is desirable to pay the labourers daily, and every effort should be made to do so. See sections 63, 64 and 68 Famine Code. Arrangements should be made under section 63 to get each gang to appoint its own headman, to whom the wages earned by the gang could be handed over for disbursement. For purposes of payment ten or more gangs might be placed under a jemadar. The wages earned by the gangs would be calculated in the evening after the completion of the day's work, and the amount due to each put into a separate bag with a label attached giving name of gang mate. All these bags would then be put into a larger bag with the names of the gang *muharrir* and the jemadar on it. In the morning the bags would be made over to the jemadars who would hand to each gang mate in the presence of the gang *muharrir* the bag containing the wages of his gang. It is obvious that if payments are made daily, there is less room for fraud and the workers are more certain to get what is due to them. A system of daily payments based on the above lines could no doubt be worked out, and if carefully attended to, it would probably be found satisfactory. The matter is one of extreme importance, and the Superintendent of Works should give it his early attention. A table, or ready reckoner, showing the wages to be paid in accordance with the varying price of grain, is given as Appendix VIII.

XII.—Reports and Accounts in the Field.

53. The basis of all accounts is the "gang register," or it should be. The most convenient form for it is given as Appendix II. This should be printed in vernacular on a sheet of ordinary country paper rather larger than the pattern, and with columns for seventeen days. The paper should be mounted on cheap muslin, and on about half of the other side of the muslin should be pasted another piece of paper printed as shown on back of the example. This back part is called the "mate's list." Two such registers are kept going for each gang, not in duplicate, but in alternate use. Together they last for well over a month.

54. When a gang is first formed (paragraph 33), the "mate's list" is written up at once, and that copy of the "gang register" handed to the mate, who should be warned to take great care of it, as his wages depend on it. The heading gives the mate's name and distinguishing number, and the name of the *muharrir* to whom consigned. Beneath is a nominal roll of the diggers, followed by one of the other adults of the gang, then a numerical list of the children of each grade. Lastly, a list of the tools to be supplied by the storekeeper. A separate slip containing an order for tools is sent with the mate, to be retained by the storekeeper as a voucher. The "mate's list" is not to be kept up as a regular nominal roll, but is merely corrected from time to time as changes occur in the gang. The mate should not be permitted to have any persons in his gang who are not entered on the list by his *muharrir*. The officer in charge should check a few lists nearly every day. Every officer inspecting the gangs should check a few. The list gives very little trouble and is of constant use in examining gangs, and the entries in the register itself.

55. The first afternoon a gang is on the works its register is written up by the gang *muharrir* in whose charge it may be. There is no question of fines. He compares the persons present with the entries, enquires into any differences, and makes any necessary alterations. He pays a day's wages, writes up the second copy of register, and exchanges it for the first. He tells them about tasks and fines, and goes on. The sub-overseer has meanwhile pointed out

the next day's tasks and told the mate what his duties are, including a word about distributing the tasks for next day overnight, conservancy, drinking water, tool repairs, and *banias'* shops.

56. After the first day the gang *muharrir* checks attendance in the morning, and fills in the attendance entries down to the second set of totals. He calculates and enters wages on the register, tells the mate what they come to, and signs on the line left for the purpose. Some time in the afternoon the sub-overseer, in charge of that portion of the work, examines the work done (if properly set out, the tasks seldom require actual measurement) and enters the quantity due, and that done, on the appropriate line. If there has been scamping or short work, he assesses fines as instructed in paragraph 45 above, explains to the mate exactly what they are and why inflicted, and enters the fines and his signature below. He makes a note of all such entries in his own note-book. The system of daily payment as described in paragraph 52 above can then be followed. On each day that he pays the gang's wages the *muharrir* takes the copy on which he has paid, and gives the other to the mate. The mate always has one copy of the register, and does not give it up excepting on the gang's wages being paid in full, less fines. The *muharrir* is obliged to recover the fines as assessed by the sub-overseer or work agent, and has no power to remit them. Only a written order of the officer-in-charge can remit the fines, and that order must be written on the register itself—this is necessary to prevent fraud. The copy taken away by the *muharrir* is submitted by him as his voucher for payments. Every such voucher requires to be examined by the officer-in-charge.

57. For purposes of classification and daily report the *muharrir* must keep a day-book in the form given as Appendix III. It is a mere daily abstract from the gang registers for each day. He starts in the afternoon with a certain amount of cash, for which he leaves a receipt. At every gang he writes up his day-book; at some of them he makes payments, and in each such case he takes the gang register held by the mate and gives him the other copy in exchange. He enters all payments in his note-book of the day. On returning to the staff quarters he pays in the unpaid balance of money left in his hands and puts in the gang registers as vouchers for payments. The officer-in-charge and his sub-cashier make all necessary comparisons and entries, and return him the gang registers, signed against the last day they are paid to. Every head of a special branch should keep up these day-books if he is to pay his men himself, as perhaps the water foreman should, and also the officer in charge of the hospital.

58. The officer-in-charge abstracts all the day-books into his own day-book for purposes of classification and account. His book is the same as the *muharrir's*, except that, instead of the first two columns for the gang and mate, it has one column containing the *muharrir's* name; and the entries are copies of the duly examined *muharrir's* day-book totals. From this the officer-in-charge writes up Famine Code Form V. This must be written up daily without fail and despatched to the Subdivisional Officer on Monday morning. The weekly returns will therefore be for the week ending with Saturday.

59. The officer-in-charge will despatch a daily report post-card to the Subdivisional Officer, and also to the Collector and the Divisional Engineer if required. The form for this is given in Appendix IV, and the cards should be supplied ready printed. He has also to submit to the Collector the reports described in sections 94 and 86 of the Code. Every additional account or report thrown on the "officer-in-charge" is a distinct hindrance to his work, and it is the duty of the Divisional Engineer to see that no clerical work not absolutely necessary is thrown on to him.

60. From the Divisional Engineer the Chief Engineer requires a weekly report, and the Superintending Engineer requires one in the form which is given as Appendix VI. Both these forms are supplied ready printed, and should be submitted with unfailing punctuality, and in accordance with the instructions on them, from the time that relief works are opened under the Public Works Department. All famine relief forms should be locally printed under the orders of the Superintending Engineer, and charged to Famine Relief contingencies.

XIII.—Checking Work, Numbers, and Payments.

61. It is as a safeguard against fraud, and an instrument of detection, that the gang register system of keeping the initial accounts first shows its full value. It is of course of no use without the personal element of a man who insists on its being kept up properly, and who will utilize it fully. Every petty official whose end would be served by confusion will try to spoil the registers and exaggerate the difficulty of keeping them up. This is so marked that an inability to keep the registers straight may be almost regarded as the sign of a rogue. At least the man is incompetent, and therefore should go. If it is the officer-in-charge himself who fails to enforce method and a checkable system of record and accounts, there is the more reason why he should be replaced by a competent man.

62. The progress shown should be checked by test measurements extending over selected parts of the work, the recorded progress of which can be disentangled from the remainder. For this purpose it is well to have all the accounts of a road, or other long work, closed up at every four miles or so and a new start made.

63. The numbers are checked by counting the number of gangs at work along a road, &c., and sampling the entire entries in the *muharrir's* day-book by careful comparison of about 20 per cent. of the gang registers with the entries, and also with the numbers actually found present. Look through the gang register, and see whether there have been any recent curious fluctuations. If so, they require explanation, and the mate's list on the back will throw some light on the subject. The general accuracy of each of the day-books is thus checked in turn. If not satisfied over a *muharrir's* day-book, it is best to stay there and obtain some tangible results before going further.

64. Supposing the day-books have been found fairly correct, after checking a certain number of totals and the detailed calculations, the totals are then compared with the entries made in the day-book kept by the officer-in-charge. The totals of this latter day-book are again checked and compared with the entries in Form V, and those again with the payments recorded in the cash-book. The cash-book itself is then carefully gone through as usual.

65. An examination should be thorough, but mostly in the way of sampling, unless something is lighted on, and in that case it should become very thorough indeed. The way in which the accounts and records are kept is often a very good guide to what one may expect to meet with. If they are kept in such a manner as to facilitate check, rigid sample checking will probably be found to be sufficient. If, on the other hand, the books are in confusion and practically useless for checking purposes, it will be well to have a very complete examination; for there is either carelessness which many will have taken advantage of, or there is worse. Every examination must be conducted with the greatest patience and consideration of the difficulties and pressure under which all are working. Unavoidable error is, however, quite a different thing from actual fraud or criminal carelessness, and the former at least can never be passed over. If enquiries establish a substantial presumption of fraud, the officer-in-charge must be at once removed by the Subdivisional Officer; in case of carelessness the orders of the Divisional Engineer should be awaited, unless immediate removal is necessary in the interests of Government or the workers. In either case the Subdivisional Officer will forward a full report to the Divisional Engineer, and also inform the Collector of the action taken, and the reasons for it. The Divisional Engineer will report the matter to the Superintending Engineer for such further action as may seem to be desirable.

LIST OF APPENDICES.

I.—Professor Hankin's instructions for the disinfection of wells.
II.—The Gang Register and Mate's List.
III.—The *Muharrir's* Day-book.
IV.—Daily Report Post-card.
V.—Weekly Report for Superintending Engineer.
VI.—Form of Appointment for Work Agent.
VII.—Wages Ready Reckoner.

APPENDIX I.

Directions for treatment of wells with permanganate of potassium as a means of checking epidemics of cholera.

PERMANGANATE of potassium is a crystalline salt-like substance, of a purple colour, in whose preparation only mineral substances are employed. Hence its use in wells need not be objected to by the strictest Hindu.

Put one or two ounces of the solid substance into a *dol* or bucket that has been filled with water drawn from the well about to be treated. Stir it up, and pour the red solution thus produced into the well, leaving the portion of permanganate that is not yet dissolved at the bottom of the *dol*. Lower the *dol* into the well, fill it with water, draw it up, pour back the water as before. Repeat the process till all the permanganate has been dissolved. After half an hour draw up some of the water and examine it. If a red colour is still present, enough has been added. If the red colour has disappeared, then more permanganate should be added to the water in the well. In all cases enough permanganate should be added to produce a faint red colour lasting for 24 hours.

If the water in the well is bad, more permanganate will be necessary. In such a case it will be found that the strong red colour at first produced quickly changes to brown, and then fades away. This is because the permanganate destroys dirt and is destroyed by it. Therefore, if the water in the well is clean, a smaller quantity of permanganate will be necessary. From one to four ounces of permanganate will be found to be enough for ordinary wells. If more permanganate is added than is enough to produce a faint permanent red colour, it is likely that frogs that may be in the well will be killed. This will in a few days give the water a putrid taste. If the quantity of permanganate is not enough to produce a faint permanent red colour, it is not likely to do any good. If possible, the permanganate should be added at night, in order to leave the wells undisturbed as long as possible. The water will be fit to drink on the following morning. If on the following morning a red colour is still present, the water may have an unpleasant taste, but it is perfectly harmless. If the inhabitants do not like the taste, they should be instructed to pump out the water until the colour vanishes. Always care should be taken to treat with permanganate all the wells in the place, not only those used for drinking, but also those used for washing purposes Care should be taken to explain to the inhabitants the reason of using permanganate, and they should be warned against using water from other sources that have not been treated. If one well is required for immediate use, perhaps it would be advisable to add to it a quantity of permanganate, and to employ *bhishtis* to draw out the water until the colour has disappeared, but this well should again be treated with permanganate on the following day when the other treated wells are brought into use.

Usually water is kept stored in the houses for washing or other purposes in *gharas*, &c. This should be poured away, and, if possible, the inhabitants should be persuaded to wash out their *lotas* and other vessels with water containing permanganate. Unless this is done, isolated cases of cholera are likely to occur even four or five days after the treatment of the wells. I have had experience of a case in which a woman was attacked with cholera after treatment of wells, because she was frightened of touching the red water in the well, and drank water that had been stored in the house and that had been taken from the well before the addition of the permanganate.

A pamphlet explaining the use of permanganate, entitled "The Prevention and Cause of Cholera," may be obtained from the undersigned in Urdu, Hindi, and English. It is being translated by various Local Governments into Burmese, Tamil, Telegu, Malayalam, Uriya, Marathi, Gujrati, Kanarese, and Sindhi.

E. H. HANKIN,

Chemical Examiner and Bacteriologist, N.-W. P. and Oudh.

Gang Register of No. _____ *Mate* _____ *Month* _____ *District* _____

Name of Work.

Items.	Day and date.																			
	Ware in pice.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No	Amount.
WORKERS. Men, B, diggers and special ...																				
Do., B, others																				
Do., D																				
Women, B. diggers																				
Do., B, others																				
Do., D																				
Children, I (12 to 16)																				
Do., II (7 to 12)																				
Totals ...																				
GRATUITOUS. Men																				
Women																				
Children, III*																				
Do., IV (Infants) ...																				
Totals ...																				
Signature of gang *Muharrir*																				
Task in cubic feet		due.	done.																	
Fine inflicted		No.	Amount.																	
Number of persons and amount																				
Signature of Sub-Overseer																				
Amount paid																				
Signature of gang *Muharrir*																				

NOTE.—Officer in charge, or his sub-cashier, to sign against the last payment recouped to the Gang *Muharrir*.

* Grades III and IV of the children not to be separately entered so long as they get the same wage.

NOTE.—Continue the form to hold 17 days.

MATE'S LIST.

(To be pasted on the back of the Gang Register.)

*Gang No.*_____ *Mate's name*_____

*Name of Gang Muharrir*_____

Muharrir to sign and date entries and alterations on each occasion.

Day-book of *Gang Muharrir.* *Day and Date.*

Name of Work *District.*

Number of Gang.	Name of Mate.	Entries.	Workers attendance.														Gratuitous.					Grand Total number and wages.	Task in cubic feet.		Fine inflicted.	Balance due to gang.	Date on which paid.
			Men.					Women.				Children.				Grand Total of workers.	Men.	Women.	Children.		Total.		Due.	Done.			
			Mate A.	Digger B.	Others B.	Class D.	Total.	Digger B.	Others B.	Class D.	Total.	Grade I.	Grade II.	Grade III.	Total.				Grade III.	Grade IV.							
		Daily Wage ...																								
		Nos.																								
		Amounts.																								
		Nos.																								
		Amounts.																								
		Nos.																								
		Amounts.																								
		Nos.																								
		Amounts.																								
		Nos.																								
		Amounts.																								
		Nos.																								
		Amounts.																								
		Nos.																								
		Amounts.																								
	Total ...	Nos.																								

Note—Money entries to be in red ink.

Signature of Muharrir.

APPENDIX IV.

Famine Relief Daily Report Post-card.

(Forwarded daily to Subdivisional Officer, and to Divisional Engineer, and Collector if required.)

Famine Relief * * * * District.
Daily Report for _____ 1897.
Work _____

Items.		Workers.	Gratuitous.
Men,	No.		
Women,	No.		
Children,	No.		
Total,	No.		
Total Wages	Rs.		

Quantity of work done, cubic feet.
Remarks

Posted on date _____ 1897.

* * * The name of the district is to be ready printed on each post-card.

The address is ready printed on the front of each post-card and also a place for, signature of the sender, in most cases the Officer in Charge,

Notes for preparation of the form.

1.—The Subdivisional Officer will fill up the form on reverse, and forward it on Saturday night to his Head Clerk for completion as within from office records.

2.—The return will be completed by Head Clerk and despatched direct to Superintendent of Works by Wednesday at latest.

3.—The serial order of works, column 1, should be kept the same, each new work starting with a new serial number and keeping it till closed.

4.—If wages are given for Sunday, the attendance for Sunday must be counted in as well (*vide* paragraph 67 of rules).

5.—All entries in columns 12 to 15 must be to the nearest rupee, omitting fractions of a rupee.

6.—The abstract on front page will be filled in by Office of Superintendent of Works.

APPENDIX V.

FAMINE RELIEF.

Week ending Saturday.

The _____ *189*

_____ *District.*

_____ *Division.*

No. _____ *dated* _____ *189*

FORWARDED to the Superintendent of Works, Famine Relief, Bihar.

ABSTRACT.

Week's wages to workers only (total at foot of column 12) ... Rs. _____

Quantity of work done (total at foot of column 11) ... C. ft. _____

Rate per 1,000 cubic feet ... Rs. _____

Number of units relieved (total at foot of column 9) ... No. _____

Wages and gratuitious relief for week (totals of columns 12 and 13 added together) ... Rs. _____

Rate per unit ... ... Pies _____

WEEKLY REPORT FOR SUPERINTENDENT OF WORKS.

_____ DISTRICT. RELIEF WORKS. _____ DIVISION.

Progress Return for week ending Saturday _____ *189*

Serial number.	NAME OF WORK.	TOTAL OF ALL CLASSES EMPLOYED.			TOTAL OF ALL CLASSES GRATUITOUSLY RELIEVED.			Grand total of all persons on the work.	WORK DONE DURING WEEK.		PAYMENTS DURING WEEK.				CAPACITY FOR FURTHER EMPLOYMENT AT DATE.		REMARKS.
		Men.	Women.	Children.	Men.	Women.	Children.		Nature.	Quantity.	Wages.	Gratuitous relief.	Other items.	Total.	Number of persons.	Period in days.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Total ...																

Dated at _____, *the* _____ *of* _____ *189*

Head Clerk for Subdivisional Officer.

WEEKLY REPORT BY S. D. O. FOR PERIOD ENDING SATURDAY.

_____ 189

1. Condition of the relief workers.

2. Outburst of disease.

3. Efficacy of food and water-supply arrangements. Grain used as basis of wages, and its in seers per rupee.

4. Sufficiency of staff and organization of gangs.

5. Succinct notes on work personally inspected, and anything which should be brought to notice on the F. R. Works.

Dated at _____)
The _____ *th 189* .)

Subdivisional Officer.

APPENDIX VII.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT.

Form of Appointment of a member of the Work Establishment.

(*To be prepared and signed in triplicate, one copy to be given to the person appointed, one copy to be transmitted to the Examiner, P. W. Accounts, and one copy to be recorded in the office of the authority making the appointment.*)

FROM

THE SUPERINTENDENT OF WORKS, FAMINE RELIEF,

P. W. Department,

To

No.

Dated at *the* *of* *189* .

Under sanction conveyed in Government order No. dated , you are hereby appointed a member of the work establishment of the Division, Public Works Department, Bengal, as a Famine Relief on a consolidated salary of Rupees ( ) per month, with effect from the morning of the day you enter upon your duties under the Executive Engineer of the Division to whom you should report yourself without delay.

2. Your appointment will cease on receipt of a written notice from the Executive Engineer. If he considers your conduct and work have been satisfactory, he is empowered to then pay you a sum equivalent to your salary for ten to fourteen days in lieu of travelling allowance to enable you to return home. This cannot be claimed as a right.

3. You are liable to summary dismissal at any time, without notice, for serious misconduct or incompetence proved to the satisfaction of the district Executive Engineer.

4. While in Government employ you will be subject to, and governed by, the rules for the time being in force in the Public Works Department, supplemented by such other orders as you may from time to time receive from the officer under whom you are serving.

5. Your salary is consolidated and includes all charges, and you will not be entitled to any travelling or other allowances.

6. This appointment is cancelled should you fail to join by

Superintending Engineer.

(Declaration by person appointed.)

I HEREBY accept the appointment conferred on me in the above order, the terms of which I clearly understand and agree to; and I hereby bind myself to observe and abide by the rules referred to in paragraph 4 of the said order.

(*Signature*)

Dated at *the* *th of* *189* .

WAGES READY RECKONER.

Table showing the wages to be paid to the various classes of persons on Famine Relief Works (paragraphs 59 and 60), being the money equivalents payable on the basis of the current retail price of the staple grain in ordinary local consumption by the labouring classes, and in the state, husked or unhusked, in which that grain is ordinarily sold by retail for consumption (paragraph 58).

Description of persons in receipt of relief.	Basis of the wage.	Retail price of the ordinary grain as above.												
		12 *sérs* per Re.	11 *sérs* per Re.	10 *sérs* per Re.	9½ *sérs* per Re.	9 *sérs* per Re.	8½ *sérs* per Re.	8 *sérs* per Re.	7½ *sérs* per Re.	7 *sérs.* per Re.	6½ *sérs* per Re.	6 *sérs* per Re.	5½ *sérs* per Re.	5 *sérs* per Re.
		The wages to be paid.												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
WORKERS.														
Mates of gangs and other workers in responsible posts.	6 pies more than a digger ...	2 0	2 3	2 3	2 6	2 6	2 9	2 9	3 0	3 3	3 6	3 9	4 0	4 3
Adult males. Diggers and men in special gangs ...	19 *chitaks* of grain ...	1 6	1 9	1 9	2 0	2 0	2 3	2 3	2 6	2 9	3 0	3 3	3 6	3 9
Adult males. All other workers	14 *chitaks* of grain ...	1 3	1 3	1 3	1 6	1 6	1 6	1 9	1 9	2 0	2 0	2 3	2 6	2 9
Adult females. Diggers	16 *chitaks* of grain ...	1 3	1 6	1 6	1 9	1 9	1 9	2 0	2 0	2 3	2 6	2 9	2 9	3 3
Adult females. All others workers	13 *chitaks* of grain ...	1 0	1 3	1 3	1 3	1 6	1 6	1 6	1 9	1 9	2 0	2 3	2 3	2 6
Children. Grade I (over 12 and under 16) ...	10 *chitaks* of grain ...	0 9	0 9	1 0	1 0	1 0	1 3	1 3	1 3	1 6	1 6	1 9	1 9	2 0
Children. Grade II (over 7 and under 12 years) ...	6 *chitaks* of grain ...	0 6	0 6	0 6	0 6	0 9	0 9	0 9	0 9	0 9	1 0	1 0	1 0	1 3
DEPENDENTS.														
Adult males	2 *chitaks* of grain ...	1 0	1 0	1 3	1 3	1	1 3	1 6	1 6	1 9	1 9	2 0	2 3	2 3
Adult females	10 *chitaks* of grain ...	0 9	0 9	1 0	1 0	1 0	1 3	1 3	1 3	1 6	1 6	1 9	1 9	2 0
Children. Grade III (not in arms under 7 years) ...	3 *chitaks* of grain ...	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 6	0 6	0 6	0 6	0 6
Children. Grade IV (infants in arms)	One pice extra to the mother	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3	0 3

Reg. No. 6879C—500—25-1-97.

NOTE ON FAMINE RELIEF OPERATIONS TO BE CARRIED OUT IN THE PATNA DIVISION BY THE PUBLIC WORKS DEPARTMENT.

1. In consequence of the distress in Bihar having become more acute, the people are coming on to work in greater numbers than it is possible for the District Officers to arrange for, and the Public Works Department have been called upon to open large works in order to provide suitable employment for those in need of relief. The districts in the Patna Division, which are chiefly affected, are Champaran, Muzaffarpur, Saran, and Darbhanga.

2. The Government of India have, on the application of this Government, sanctioned the appointment of Mr. C. A. Mills as Superintendent of Works on special duty in connection with famine relief operations in Bihar, and all works carried out by the Public Works Department under Famine Code conditions during the continuance of the scarcity will be under his charge.

It is proposed to appoint, with the consent of the District Boards, the District Engineers of Champaran, Muzaffarpur and Darbhanga to the Public Works Department as temporary Engineers, as their knowledge of the resources of the country and of the works which will have to be undertaken will be of the greatest value in arranging for the employment of the large numbers of people that may be expected to flock to the works. The relief operations will be on so extensive a scale that, in order to insure efficient supervision, a large staff will be necessary in each district. It has therefore been arranged to make each district an Executive Engineer's charge, and to break up the district into as many subdivisions, each officered by a member of the Public Works Establishment as circumstances may render necessary. The staff required for each district has been estimated on a consideration of the numbers of persons for which work will have to be found, and the details are given in the statements attached to this Note.

3. The information necessary to draw up a programme of suitable works for the employment of the people, and to determine the establishment required for their efficient supervision, is briefly as follows :—

(1) The area affected.
(2) The population of that area.
(3) The number for which relief will have to be afforded, and the proportion of workers to non-workers in that number.
(4) The period for which work will have to be kept open.
(5) The nature of the works to be provided.

Fairly accurate information in regard to (1) (2) and (5) can readily be obtained, but in respect to (3) and (4), only very approximate estimates can be given, and the figures now taken are subject to correction hereafter, as the conditions which influence them develop and become better known. The Commissioner of the Division and the Collectors of the Districts have given such information on these points as the means at their disposal admit of, but they desired it to be understood that it is absolutely impossible at the present time to obtain reliable data on which to base the figures they have supplied me with.

4. The most suitable form of work on which to employ the people is earthwork, and this can be found in the construction of new and the deepening of old tanks, the raising and improving of existing roads, and the construction of new roads in localities where the means of communication are defective. In the Champaran and Darbhanga districts some extensions of the Tirhut State Railway are now being aligned and surveyed, and they will afford employment of a useful kind for a considerable number of people. Work on the Segowli-Raxaul extension of the same system has actually been commenced, but it is not being carried out under Famine Code conditions. It will, however, employ a number of professional labourers who would otherwise come on to relief works. Should the available works in the way of roads, tanks and irrigation cuts in any district traversed by a railway not prove sufficient to meet requirements, the question of doubling the formation width of such lines as are likely even in the remote future to require a double line of rail might be considered with advantage.

5. In order to estimate the extent of the work to be arranged for, it is necessary to assume a value for the quantity which the relief workers can perform on an average per head daily. In the case of tank work the distance to which the earth has to be carried will generally be considerable, and the carriers must therefore largely outnumber the diggers, but on ordinary embankments and irrigation cuts the lead is comparatively short and less carriers will be necessary. On a consideration of the classes of work available, and bearing in mind that, as a general case, only the men of a family will dig, it is assumed, for the purposes of this forecast of requirements, that the average daily outturn of earthwork per man, woman, and child may be taken at 30 cubic feet.

6. In calculating the number of days for which employment will have to be found, Sundays are excluded, as although the people themselves do not look upon that day as one in which no work should be done, yet it has to be remembered that it is desirable for many obvious reasons that the staff engaged in supervising the workers, who will all be working at high pressure, should not be deprived of one day of rest in the seven. The Famine Code besides (section 70) strictly enjoins that relief workers are not to be allowed to labour on Sunday.

The works on which the relief workers can be employed may be briefly stated thus:—

(1) Raising and improving existing roads.
(2) Constructing new roads, either as feeders to existing or projected lines of railway, or through tracts in which there are none at present, and where it is a public convenience to give means of communication.
(3) Extension of irrigation works and the construction of new water channels, or *pynes* as they are locally known.
(4) Flood embankments.
(5) Railway embankments.
(6) Deepening existing tanks and digging new ones at selected sites.

The quantity of work available under the above heads in each of the districts has been worked out in sufficient detail in the tables attached, and full information is also given as to the number of persons for whom employment has to be found. The works enumerated will be taken up on the requisition of the Collector (section 22, Famine Code), who will give timely notice to the Superintendent of Works as to the localities in which relief works are required, and such information as is available in regard to the numbers which may be expected to come on to them.

8. In carrying out relief works, the system which was found to answer in the recent famine operations in Bundelkhand, and which is so admirably described in Resolution No. 18P.W. of the North-West Provinces Government, dated 5th December 1896, should be as closely followed as possible. It is evident, from a perusal of the Resolution referred to, that the backbone of the whole system is the Officer in charge (section 59 of the Famine Code). On his efficiency depends to a great extent the success of the measures undertaken for the relief of the people, and it is therefore of the utmost importance that he should be a person in whom the fullest confidence can be placed. Attention is invited to the Resolution issued by the Bengal Government, No. 420M.P.I., dated 25th January 1897, containing rules and regulations for the guidance of officers engaged in carrying out relief works.

J. G. H. GLASS.
Secy to the Govt of Bengal.

The 23rd January 1897.

C. R.—Reg. No. 6924C—500—25-1-97.

CHAMPARAN DISTRICT.

EXECUTIVE ENGINEER IN GENERAL CHARGE.

MR. E. T. SEALY (HEAD-QUARTERS MOTIHARI).

(1) Motihari Subdivision—head-quarters Motihari.

THANA.	Number on relief works (average) daily.	PUBLIC WORKS ESTABLISHMENT.		
		Engineers.	Upper subordinates	Lower subordinates.
1	2	3	4	5
Motihari	4,000	1	2	5
Dhaka	17,000			
Adapur	2,000			
Total ...	23,000	1	2	5

NOTE.—Maximum number expected on relief works, 54,000.

(2) Bettiah Subdivision—head-quarters Bettiah.

Bettiah	11,500	1	3	10
Kesaria	6,000			
Gobindganj	14,000			
Madhuban	5,500			
Total ...	37,000	1	3	10

NOTE.—Maximum number expected on relief works, 120,000

(3) Ramnagar Subdivision—head-quarters Ramnagar.

Bagaha	8,000	1	2	6
Hardih	11,000			
Tribenni Scheme	?		1	6
Total ...	19,000	1	3	12

NOTE.—Maximum number expected on relief works, 40,000.

H. S.—Reg. No. 6982C—427—27-1-97.

STATEMENT I.

Champaran district. Areas and population of thanas.

NAME OF THANA.	Area. Square miles.	Population.	Distressed area. Square miles.	Population of distressed area.
1	2	3	4	5
Bagaha	710	216,054	180	66,000
Hardih	766	209,724	254	91,000
Bettiah	537	334,687	235	146,000
Adhapur	224	167,419	20	15,000
Kesaria	269	183,673	135	92,000
Gobindgunge ...	272	179,040	260	171,000
Motihari	288	190,207	60	60,000
Madhuban	129	109,542	80	68,000
Dhaka	336	269,719	175	141,000
Total ...	3,531	1,859,645	1,399	850,000

STATEMENT II.

Showing numbers to be employed on relief works and quantity of work required.

THANA.	Population of distressed area.	Assumed per cent. requiring relief.	Total requiring relief daily.	Deduct non-workers calculated at 20 per cent.	Total workers (round numbers.	Period of relief.	Quantity of work to be provided calculated at 30 cubic feet per head per day column 6 × column 7 × 30.
1	2	3	4	5	6	7	8
							C. ft.
Bagaha	66,000	15	9,900	1,980	8,000	From 1st February to 31st August (92 days, excluding Sundays).	44,000,000
Hardih	91,000	15	13,600	2,720	11,000		60,000,000
Bettiah	146,000	10	14,600	2,940	11,500		63,000,000
Adhapur	15,000	15	2,250	450	2,000		11,000,000
Kesaria	92,000	8	7,360	1,472	6,000		33,000,000
Gobindganj	171,000	10	17,100	3,420	14,000		76,500,000
Motihari	60,000	8	4,800	960	4,000		22,000,000
Madhuban	68,000	10	6,800	1,100	5,500		30,000,000
Dhaka	141,000	15	21,100	4,220	17,000		93,000,000
Total ...	850,000	.....	97 510	19,322	79,000		432,500,000

NOTE.—In the Bettiah thana relief works may probably be discontinued from the end of July, or one month earlier than in the other thanas, but requirements are calculated for the full period of seven months.

Bagaha Thana—Available Works.

Work requirements 46,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 16. Ramnagar to Burgaon ...	12	2,500,000	Raising road and filling up side tracks are taken as representing a section of 40 feet per foot run of road.
,, 18. Pursa to Lagunaha ...	8	1,700,000	
,, 19. Lagunaha to Bagaha ...	16	3,400,000	
,, 49. Sukayia to Lowriya ..	4	850,000	
,, 56. Bagaha to Madhaban ...	8	1,700,000	
,, 70. Bagaha to Tribenni ...	30	6,350,000	
,, 76. Ramnagar to Harnatand ...	16	3,400,000	
,, 81. Bhitaha to Madhaban ...	8	1,700,000	
Totals ...	102	21,600,000	
(2) Constructing new roads—			
(1) Railway feeder road from Kalasswar crossing of the Harnatand-Ramnagar road southwards to the new railway.	8	3,000,000	It is assumed that the section of the road, including side tracks, will give 70 feet per foot run.
(2) Pipra ghát to Bhitaha ...	14	5,000,000	
(3) Bagaha to Piprassi ...	6	2,200,000	
(4) Madhuban to Basi river ...	6	2,200,000	
(5) Sikwaya to Jogaputta ...	5	2,000,000	
(6) Dhamra to Patilarh ...	5	2,000,000	
Totals ...	34	16,400,000	
(3) New railway, Ramnagar to Bagaha ...	17	7,200,000	80 feet of section.
(4) Construction and deepening of tanks— (as required).	.....	.....	
Grand total of work available ...	.....	45,200,000	

If the Tribenni-Dhanauti Scheme is carried out it will afford employment for a large number of people in this thana.

HARDIH THANA—AVAILABLE WORK.

Work requirements 60,000,000 cubic feet.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads —			
No. 15, Ramnagar to Shikarpur ...	8	1,700,000	Section taken at 40 feet per foot run.
„ 14, Lowriya to ditto ...	9	1,900,000	
„ 54, Shikarpur to Balther ...	12	2,500,000	
„ 50, Lowriya to Ramnagar ...	14	3,000,000	
„ 53, Shikarpur to Champuttia ...	11	2,300,000	
„ 58, Ahera Siswa to Balther ...	4	4,000,000	No. 58 requires much raising.
„ 64, Champuttia Mainatar ...	7	1,500,000	
„ 76, Ramnagar to Harnatar ...	6	1,250,000	
„ 78, Shikarpur to Biknathari ...	20	2,100,000	Only 10 miles.
„ 79, Ramnagar to Gobardanna ...	12	2,500,000	
Total ...	103	22,750,000	
(2) Constructing new roads—			
Hardih to Gobardanna ...	16	4,500,000	Section 70 feet per foot run.
Ahera Siswa to Biknathari ...	12	6,000,000	
Total ...	38	10,500,000	
(3) Railway embankment	36	15,000,000	80 feet of section per foot run.
(4) Tanks—(as required)	...	12,000,000	
GRAND TOTAL, EARTHWORK ...	...	60,250,000	

If the Trebenni scheme is undertaken, there will be no necessity to construct the number of tanks represented by the quantity set against that item, as ample work for all will be found on it in addition to the road and railway projects enumerated.

BETTIAH THANA.—AVAILABLE WORKS.

Work requirements 63,000,000 cubic feet.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet..	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—			
No. 4, Bettiah to Jagdispore ...	9	1,300,000	30 feet of section per foot run.
,, 8, Rajghat to Bettiah ...	10	1,600,000	
,, 10, Bettiah to Betthan ...	20	6,250,000	Part of No. 10 road to be raised 4 feet.
,, 12, Bettiah to Tengrahi ...	12	2,000,000	
,, 13, Bettiah to Champuttiah ...	10	1,600,000	
,, 17, Rajghat to Pursa ...	16	2,500,000	
,, 29, Segowli to Rajghat ...	6	1,000,000	
,, 33, Hurdia to Burhurwar ...	6	1,000,000	
,, 46, Bettiah to Bagahar ...	12	2,000,000	
,, 47, Bettiah to Lauriga ...	14	2,000,000	
,, 48, Bettiah to Duriha Bazaar ..	12	2,000,000	
,, 51, Dhokraha to Piparpathi ...	45	800,000	
,, 52, Bettiah to Pipariaghat ...	11	1,750,000	
Total ...	143	26,000,000	
(2) New roads—			
Harpur to Tengrai Ghát ...	18	6,500,000	Mean section 70 feet per foot run.
Nowton Dubi to Lalserai ...	10	3,700,000	
Sikta to Majoulia	16	6,000,000	
Road to New Pipra Ghát ...	4	1,500,000	
Total ...	48	17,700,000	
(3) Tanks (as required)—			
(4) Irrigation channels—			
Pynes or irrigation cuts from the Ooriya, Sickta, and Gadh rivers, each about 7 miles in length.	21	8,000,000	Bed 10 feet wide, depth of cutting 4 feet, and side slopes 2 to 1, average section 72 feet per foot run.
(5) Connecting the Harha river (from the Tribenni scheme) with the Dhanauti.	10	63,000,000	Bed 50 feet wide, depth 15 feet, average section 1,200 feet per foot run.
(6) Gunduck river embankment from 33⅓ to 42nd mile.	8⅓	5,000,000	
Total ...	38⅓	76,000,000	
GRAND TOTAL EARTHWORK ...	.....	119,700,000	

ADHAPUR THANA—AVAILABLE WORK.

Work requirements 11,000,000 cubic feet.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—			
No. 6, Segowli Raxaul	17⅓	3,700,000	40 feet of section.
„ 21, Motihari Khutkenwa ...	1½	300,000	
„ 60, Raxaul to Bhouea ...	2½	525,000	
„ 69, Khutkenwa to Adhapur and Raxaul.	2	425,000	
Total ...	.....	4,950,000	
(2) New roads—			
Naicuttia to Lukhaura	8	3,000,000	Section 70 feet.
Ditto to Adhapur	8	3,000,000	
Total ...	.. ...	6,000,000	
Tirhoot Railway extension ...	20	8,500,000	80 feet of section.
Total ...	20	8,500,000	
GRAND TOTAL EARTHWORK ...	.....	19,450,000	

KESARIA THANA—AVAILABLE WORKS.

Work requirements 33,000,000 cubic feet.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—		Cft.	
No. 23, Pipra Factory to Sutterghat ..	20	4,250,000	40 feet of section.
„ 24, Rajpore to Bara	10	2,120,000	80 feet of section.
„ 25, Rajpore to Sahibganj	4	850,000	40 feet of section.
„ 26, Rajpore to Turcowlia	11	2,320,000	
„ 27, Kasaria to Gobindganj ..	8	1,700,000	
„ 41, Bara to Seeraha	5	1,060,000	
„ 57, Tajpore to Kurnaul	4	850,000	
„ 59, Pipra to Barhurwa	7	1,500,000	
„ 11, Motihari to Maisi	22	4,600,000	
Total ...	91	19,250,000	
(2) New roads—			
Bara to Sahibganj	8	3,000,000	Section 70 feet.
Kotwa Barhurwa to Hosseinee ...	12	4,500,000	
Kotwa Barhurwa to Kalzanpur ...	8	3,000,000	
Total ...	28	10,500,000	
(3) Tanks	...	4,000,000	
GRAND TOTAL EARTHWORK ...	.....	33,750,000	

GOBINDGANJ THANA—AVAILABLE WORKS.

Work requirements 76,500,000 c. ft.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—			
No. 2, Motihari to Gobindganj ...	6	1,700,000	40 feet of section.
„ 7, Sigowli to ditto ...	22	4,600,000	
„ 27, Kessaria to ditto ...	10	2,100,000	
„ 28, Gobindganj to Jugdispur ...	14	3,000,000	
„ 33, Hurdia to Burhurwa ...	6	1,300,000	
„ 55, Sigowli to Jugdispur ...	8	1,700,000	
„ 62, Gobindgunj to Burhurwa ...	8	1,700,000	
„ 65, Mukwa to Gairi ...	8	1,700,000	
„ 68, Tarchoulia to Sagrampore ...	12	2,500,000	
„ 72, Buhurwa to Pacheria ghat ...	12	2,500,000	
Total ...	108	22,800,000	
(2) New roads—			
Arra Raj to Owlaha	6	2,200,000	Section 70 feet per foot run.
Lalseraia to Mukwa	12	4,400,000	
Ditto *viâ* Dudhai to Tarkowlia ...	16	6,000,000	
Total ...	34	12,600,000	
(3) Irrigation channels	...	3,000,000	
Cut from Dhanauti river to Samanti river	1	7,000,000	Section 7, 1,300 square feet per foot run.
(4) Tanks	...	8,000,000	
Total ...	...	18,000,000	
GRAND TOTAL, EARTHWORK ...	...	53,400,000	

The balance of work required, viz., 23,000,000 c. ft., can be found by transferring some of the people in this thana to the Bettiah thana.

MOTIHARI THANA—AVAILABLE WORK.

Work requirements 22,000,000 cubic feet.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—			
No. 1, Motihari to Segowli	14	3,000,000	Section of 40 feet per foot run.
„ 2, Ditto to Gobindganj ...	9	1,900,000	
„ 5, Ditto to Taturia	16	3,400,000	
„ 9, Chapra-Segowli to Dehaganj ...	4	850,000	
„ 11, Motihari to Maisi ...	8	1,700,000	
„ 21, Ditto to Khutkenwa ...	8	1,700,000	
„ 22, Ditto to Dacca ...	7	1,500,000	
„ 26, Rajpore to Tarcowlia ...	7	1,500,000	
„ 31, Tarcowlia to Soojong ...	11	2,300,000	
„ 32, Ditto to Mahdu Chapra ...	5	1,050,000	
„ 34, Pipra to Suraha	8	1,700,000	
„ 40, Seema to Soojong ...	3	600,000	
„ 73, Segowli to Narcuttia ...	11	2,300,000	
„ 74, Ramguria to Motihari ...	18	3,800,000	
Total ...	129	27,300,000	
(2) New roads—			
Dhanauti river to Kotwa Burhurwa ..	12	4,500,000	70 feet of section per foot run.
Total ...		4,500,000	
GRAND TOTAL EARTHWORK ...		31,800,000	

MADHUBAN THANA—AVAILABLE WORKS.

Work requirements 30,000,000 cubic feet.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—			
No. 11, Motihari to Maisi ...	7	1,500,000	40 feet of section.
,, 5, Ditto to Taturia ...	12	2,500,000	
,, 66, Bagmati river to Chaklawan	8	1,700,000	
,, 67, Taturia to Pahar Chuk ...	6	1,250,000	
,, 71, Madhuban to Raptia ...	5	1,050,000	
,, 43, Patai to Khodadpore ..	8	1,700,000	
,, 45, Madhuban to Bara ...	6	1,250,000	
Total ...	52	10,950,000	
(2) New roads—			
Gondra to Maisi and Katahar Ghát...	6	2,200,000	70 feet of section.
Madhuban to Maisi	6	2,200,000	
Total ...	12	4,400,000	
(3) Tanks	.....	15,000,000	
GRAND TOTAL EARTHWORK ...	.. ...	30,350,000	

The allowance made for tanks is possibly excessive, and it may not be desirable to construct so many tanks as the quantity entered above represents. In this case the relief workers may be transferred to works in adjacent thanas to the extent necessary.

DHAKA THANA—AVAILABLE WORK.

Work requirements 93,000,000 c. ft.

CLASS OF WORK.	Length in miles.	Quantity of work in cubic feet.	REMARKS.
1	2	3	4
(1) Raising and improving existing roads—			
No. 3, Seeraha to Jamwa ghat ...	16	3,400,000	40 feet of section.
„ 5, Motihari to Taturia ...	5	1,050,000	
„ 22, Do. to Dhaka ...	9	1,900,000	
„ 36, Etwa ghat to do. ...	13	2,750,000	
„ 37, Dhaka to Gorasan ...	15	3,150,000	
„ 38, Do. to Jamwa ghat ...	5	1,050,000	
„ 39, Mirpore to Gorasan ...	12	2,500,000	
„ 42, Dhaka to Padamkia ...	3	630,000	
„ 43, Patai to Madhuban ...	6	1,260,000	
„ 44, Kalkenwa to Tilara ...	19	4,000,000	
„ 61, Dhaka to Phulwaria ...	7	1,480,000	
Total ...	110	23,170,000	
(2) New roads—			
Phulwaria to Godhari ...	3	1,600,000	100 feet of section.
Raghopore to Dhanainji ...	6	3,200,000	
Bara Shunkar to Raponia ...	10	5,280,000	
Bankutwa to Lalbegia Ghat ...	13	6,800,000	
Dhaka to Patai ...	8	4,200,000	
Do. to Basantpore ...	7	3,700,000	
Patai to Bhagmuti ...	5	2,600,000	
Lakhawa to Mirpur ...	10	5,280,000	
Parewa to Bela Ghat ...	8	4,200,000	
Parsumi to Bajpur, Kawal ...	4	2,100,000	
Total ...	...	38,960,000	
(3) Railway Tirhut extension ...	20	10,500,000	100 feet of section.
(4) Irrigation cuts—			
Godhari to Pudunkaia ...	11	4,500,000	80 feet of section.
Pudunkaia to Patai ...	5	1,500,000	60 ditto.
Bakya to Basantpore ...	6	2,500,000	80 ditto.
Jhangra to Minaulia ...	14	5,750,000	80 ditto.
Total ...	...	14,750,000	
GRAND TOTAL, EARTHWORK ...	...	76,380,000	

H. S. & C. A. P.—Reg. No. 6892C—427—23-1-07.

SARAN DISTRICT.

EXECUTIVE ENGINEER IN GENERAL CHARGE.

MR. HEAD-QUARTERS CHAPRA.

(1) *Chapra Subdivision, head-quarters Chapra.*

THANA.	Numbers on relief work (average).	PUBLIC WORKS ESTABLISHMENT		
		Engineers.	Upper Subordinates.	Lower Subordinates.
1	2	3	4	5
Chapra	23,000	1 Assistant Engineer.	1 for Chapra and Manji.	3
Pursa	13,000			2
Manji	9,000		1 for Pursa and Mushruk.	2
Mushruk ...	8,000			2
	53,000	1	2	9

Maximum expected on relief works—84,000.

(2) *Gopalganj Subdivision, head-quarters Gopalganj.*

Gopalganj ...	16,000	1 Assistant Engineer	1	3
Mirganj ...	20,000		1	3
	36,000	1	2	6

Maximum expected on relief works—57,000.

(3) *Siwan Subdivision, head-quarters Siwan.*

Siwan	20,000	1 Assistant Engineer	1	3
Dharauli ...	16,000		1	3
Basantpur ...	14,000			2
	50,000	1	2	8

Maximum expected on relief works—79,000.

Statement I.

Saran district—Area and population.

Name of Thana.	Area in square miles.	Population.	Distressed area in square miles.	Population of distressed area.
1	2	3	4	5
Gopalganj	358	275,000	All distressed.	275,000
Mirganj	435	360,000		360,000
Siwan	330	335,000		335,000
Dharauli	253	225,000		225,000
Bussuntpore	246	240,000		240,000
Chupra	333	380,000		380,000
Pursa	267	235,000		235,000
Mushruk	178	145,000		145,000
Manjhi	142	155,000		155,000
Sonepore	109 (Safe)	115,000 (Safe)	.....	.....
	2,651	2,465,000	2,542	2,350,000

Statement II.

Showing numbers to be employed on relief work, and quantity of work required.

Thana.	Population of distressed area.	Assumed percentage requiring relief.	Total requiring relief daily.	Deduct non-workers calculated at 20 per cent	Total workers, round numbers.	Period of relief.	Quantity of work to be provided, calculated at 30 c. ft. per head per day, column 6 × column 7.
1	2	3	4	5	6	7	8
Gopalganj ...	275,000	About 6¾ per cent.	16,000	3,200	13,000	From 1st February to 1st October, excluding Sundays 207 days.	77,000,000
Mirganj ...	360,000		20,000	4,000	16,000		100,000,000
Siwan ...	335,000		20,000	4,000	16,000		100,000,000
Dharauli ...	225,000		16,000	3,200	13,000		81,000,000
Basantpur ...	240,000		14,000	2,800	11,000		69,000,000
Chapra ...	380,000		23,000	4,600	18,000		112,000,000
Pursa ...	235,000		13,000	2,600	10,000		62,000,000
Mushruk ...	145,000		8,000	1,600	6,500		37,000,000
Manjhi ...	155,000		9,000	1,800	7,500		43,000,000
Sonepore ...	Nil		Nil	Nil	Nil	Nil.	Nil
Total ...	2,350,000	...	139,000	27,800	111,000	...	681,000,000

GOPALGANJ THANA—AVAILABLE WORKS.

Work requirements, 77,000,000, cubic feet.

Class of Work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 47, Gopalganj-Batardih Road ...	12	2,500,000	40 cubic feet of section.
„ 23, Chapra-Sailimpur „ ...	18	3,800,000	
„ 15, Sivan-Sailimpur „ ...	18	3,800,000	
„ 19, Gopalganj-Jadubpur „ ...	6	1,300,000	
„ 44, Gopalganj-Kochaikot „ ...	4	850,000	
„ 24, Manji-Burowli „ ...	3	650,000	
„ 28, Shahpur-Pursu „ ...	10	2,100,000	
„ 11, Rajapati-Sutterghat „ ...	6	1,300,000	
„ 38, Rajapati-Bansghat „ ...	8	1,700,000	
„ 49, Gopalganj-Thaway „ ...	5	1,100,000	
	90	19,100,000	
(2) New roads—			
1, Shahpur-Burowli	9	4,500,000	To be raised 3 feet.
2, Jadubpur-Tengrahi Ghât	4	1,000,000	„ „ 1½ „
3, Bansghat-Mahommedpur	6	2,000,000	„ „ 2 „
Total ...	...	7,500,000	
(3) Village and minor roads— Improvements	...	5,000,000	
(4) Irrigation—The Superintending Engineer, Sone Circle, has proposed the construction of certain irrigation projects, surveys for which in this thana are now in hand. The quantity of work they will afford is not yet known.			
(5) Deepening existing and excavating new tanks (as required).	...	45,000,000	
Grand Total of works available, leaving Irrigation work to be determined hereafter.	...	76,600,000	

MIRGANJ THANA—AVAILABLE WORKS.

Work requirements, 100,000,000 cubic feet.

Class of Work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 10, Siwan-Kuteya road ...	30	6,300,000	40 c. ft. of section.
„ 57, Panchderi-Bhangari „ ...	17	3,600,000	
„ 74, Bhorey-Ragraganj „ ...	9	1,900,000	
„ 59, Butwa-Kuteya „ ...	13	2,750,000	
„ 58, Baragaon-Bhagapati „ ..	17	3,600,000	
„ 68, Batwa-Damri Tola „ ...	10	2,100,000	
„ 42, Dharauli-Kochaikot „ ...	18	3,800,000	
„ 44, Kochaikot-Sirsa „ ...	10	2,100,000	
„ 69, Kochaikot-Sira „ ...	6	1,300,000	
„ 60, Mirganj-Thaway „ ...	6	1,300,000	
„ 10, Mirganj-Siwan „ ...	5	1,100,000	
„ 25, Mirganj-Sutterghat	2	400,000	
Total ...	143	30,250,000	
(2) New roads—			
1 Gorakhpur boundary, *viâ* Kuteya to Chowmokha...	15	5,000,000	Raised 2 ft.
2 Chowmokha-Banda	5	1,750,000	„ „
3 Kuteya-Kochaikot	16	8,000,000	„ 3 ft.
4 Kochaikot-Damritola	7	3,500,000	„ „
5 Panchderi-Damritola	6	3,000,000	„ „
Total ...	49	21,250,000	
(3) Minor and village roads	...	7,500,000	
(4) Deepening existing, and excavating new, tanks (as required)—			
The Hutwa Raj contribute 1 lakh of rupees, or say 25,000,000 c. ft.	...	41,000,000	
Grand Total works available ...	...	100,000,000	

SIWAN THANA—WORKS AVAILABLE.

Work requirements, 100,000,000 cubic feet.

Class of work.	Length in miles	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 15, Siwan-Sailimpur road ...	12	2,500,000	40 c. ft. of section.
,, 20, Siwan-Lukri ,, ...	10	2,100,000	
,, 10, Siwan-Mirganj ,, ...	6	1,300,000	
,, 16, Siwan-Goothni ,, ...	15	3,200,000	
,, 18, Siwan-Dharauli ,, ...	9	1,900,000	
,, 17, Siwan-Siswan ,, ...	12	2,500,000	
,, 12, Chapra-Siwan ,, ...	10	2,100,000	
,, 34, Siwan-Maharajganj ,, ...	12	2,500,000	
,, 46, Siwan-Bassantpur ,, .	11	2,300,000	
,, 43, Titra Samaria ,, ...	6	1,300,000	
,, 42, Myrwa-Dharauli ,, ...	3	650,000	
,, 67, Andur-Bassantpur ,, ...	18	3,800,000	
,, 44, Maharajganj-Maniara ,, ...	18	3,800,000	
,, 25, Mirganj-Sutterghat ,, ...	15	3,200,000	
,, 70, Lukri-Seepah ,, ...	3	650,000	
Total ...	160	33,800,000	
(2) New roads—			
1 Samari-Barharia	16	5,500 000	To be raised 2 ft.
2 Arakpur-Siwan	8	4,000,000	,, ,, 3 ft.
3 Arakpur-Bhantapokur Railway ...	4	2,000,000	,, ,, 3 ft.
4 Arakpur-Myrwa Railway ...	3	1,500,000	,, ,, 3 ft.
Total ...	31	13,000,000	
(3) Minor and village roads improvements ...	...	10,000,000	
(4) Deepening existing, and excavating, new tanks (as required)	...	43,000,000	
Grand total works available ..	...	95,800,000	

DHARAULI THANA—AVAILABLE WORKS.

Work requirements, 81,000,000 cubic feet.

(1) Raising and improving existing roads—			
No. 16, Myrwa-Goothni road ...	8	1,700,000	40 c. ft. of section.
,, 13, Chapra-Goothni ,, ...	30	6,300,000	
,, 42, Myrwa-Dharauli ,, ...	9	1,900,000	
,, 18, Siwa Dharauli ,, ..	9	1,900,000	
,, 66, Andur-Narhan ,, ...	9	1,900,000	
,, 17, Siwan-Siswan ,, ...	9	1,900 000	
	74	15,600,000	
(2) New roads—			
(1) Arakpur-Myrwa (Railway) ...	5	2,500,000	To be raised 3 ft.
(2) Arakpur-Bhantapokar (Railway) ...	3	1,500,000	Ditto.
(3) Arakpur-Siwan (Railway) ...	6	3,000,000	Ditto.
(4) Arakpur-Andur	6	3,000,000	Ditto.
(5) Arakpur-Pitar	6	3,000,000	Ditto.
(6) Arakpur-Goothni	11	5,500,000	Ditto.
(7) Hassanpura-Gubhirar Ghât ...	10	5,000,000	Ditto.
(8) Andur-Siswan	13	6,500,000	Ditto.
	60	30,000,000	
(3) Village and minor roads improvements ...	...	5,000,000	
(4) Deepening existing, and excavating, new tanks (as required).	...	30,000,000	
Grand Total, works available ...		80,600,000	

BASSANTPUR THANA—AVAILABLE WORKS.

Work requirements, 69,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 23, Chapra-Sailimpur road ...	14	3,000,000	40 c. ft. of section.
„ 32, Mushruk-Nagwa „ ...	5	1,100,000	
„ 67, Andur-Bassantpur „ ...	12	2,500,000	
„ 46, Siwan-Bassantpur „ ...	10	2,100,000	
„ 24, Manji-Burowli „ ...	22	4,600,000	
„ 25, Mirganj-Sutterghat „ ...	15	3,200 000	
„ 34, Maharajganj-Hurpur „ ...	6	1,300,000	
„ 56, Maharajganj-Sisaipur „ ...	3	650,000	
Total ...	87	18,450,000	
(2) New roads—			
1, Bassantpur-Tajpur	10	5,000,000	To be raised 3 ft.
2, Bassantpur-Rajapati	7	3,500,000	Do.
3, Bassantpur-Jalalpur	12	6,000,000	Do.
4, From road No. 46 near Sisaipur to road No. 25 at Toleh Adhar ...	11	5,500,000	Do.
Total ..	40	20,000,000	
(3) Village and minor roads improvements...	...	5,000,000	
(4) Deepening existing, and excavating, new tanks (as required).	...	26,000,000	
Grand total, works available ...	...	69,450,000	

CHAPRA THANA—AVAILABLE WORKS.

Work requirements, 112,000,000 cubic feet.

(1) Raising and improving existing roads—			
No. 12, Chapra-Siwan road ...	10	2,100,000	40 c. ft. of section.
„ 23, Chapra-Sailimpur „ ...	23	4,800,000	
„ 11, Chapra-Sutterghat „ ..	8	1,700,000	
„ 14, Chapra-Rewaghat „ ...	8	1,700,000	
„ 21, Chapra-Sonepur „ ...	12	2,500,000	
„ 29, Chirand-Gorkha „ ...	8	1,700,000	
„ 22, Digwara-Paigamberpur „ ...	22	4,600,000	
„ 27, Khaira-Ramcola „ ...	3	650,000	
„ 65, Makanpur-Mobarakpur „ ...	12	2,500,000	
„ 64, Tajpur-Bhiti „ ...	10	2,100,000	
„ 30, Telpa-Soonda „ ..	4	850,000	
„ 13, Chapra-Manjhi „ ..	8	1,700,000	
„ 26, Domigurh-Sohagpur „ ...	8	1,700,000	
„ 34, Siwan-Paigamberpur „ ...	10	2,100,000	
	146	30,700,000	
(2) New roads—			
(1) Sumhota to Bhiti *vid* Paigamberpur ...	16	8,000,000	To be raised 3 ft.
(3) Village and minor roads	...	10,000,000	
(4) Deepening existing, and excavating, tanks (as required).	...	63,000,000	
Grand Total of available works ...	...	111,700,000	

PARSA THANA—WORKS AVAILABLE.

Work requirements, €2,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 27, Khaira-Ramcola road ...	8	1,700,000	40 c. ft. of section.
„ 36, Nagra-Amnour „ ...	13	2,750,000	
„ 39, Bhiti-Parsa „ ...	15	3,200,000	
„ 51, Morwa-Amnour „ ...	3	650,000	
„ 28, Parsa-Shahpur „ ..	11	2,300,000	
„ 40, Amnour-Bassantpur Ghât „ ...	3	650,000	
„ 11, Chapra-Sutterghât „ ...	6	1,300,000	
„ 14, Chapra-Rewaghât „ ..	16	3,400,000	
„ 50, Digwara Amnour „ ...	17	3,600,000	
„ 31, Sitalpur-Maker „ ...	13⅓	2,900,000	
„ 53, Pursa-Barwai ghât „ ...	6	1,300,000	
„ 68, Jagdispur-Sersia „ ...	8	1,700,000	
„ 22, Digwara-Paigamberpur „ ...	3	650,000	
Total ...	122½	26,100,000	
(2) Village and minor road improvements .	...	5,000,000	
(3) Deepening existing, and excavating new, tanks (as required).	...	31,000,000	
Grand Total works available ...	...	62,100,000	

MANJI THANA—AVAILABLE WORKS.

Work requirements, 43,000,000 cubic feet.

(1) Raising and improving existing roads—			
No. 26, Domaigurh-Sohagpur road ...	12	2,500,000	40 c. ft. of section.
„ 12, Chapra-Siwan „ ...	15	3,200,000	
„ 24, Manjhi-Burowli „ ...	16	3,400,000	
„ 35, Rasalpur-Chainpur „ ...	6	1,300,000	
„ 55, Tajpur-Chainpur „ ...	10	2,100,000	
„ 63, Manji-Tajpur „ ...	8	1,700,000	
„ 13, Chapra-Goothni „ ...	16	3,400,000	
Total ...	83	17,600,000	
(2) New roads—			
1, Ekma due east to road No. 63 ...	5	2,500,000	To be raised 3 ft.
2, Ekma-Siswan	10	5,000,000	
Total ...	15	7,500,000	
(3) Improving minor and village roads ..	...	5,000,000	
(4) Deepening existing and excavating new tanks (as required).	...	13,000,000	
Grand Total works available ...	...	43,100,000	

MUSHRUK THANA—AVAILABLE WORKS.

Work requirements, 37,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 26, Domaigurh-Sohagpur road .	15	3,200,000	40 c. f. of section.
„ 32, Mushruk-Nagwa „ ...	5	1,100,000	
„ 11, Chapra-Sutterghat „ ...	15	3,200,000	
„ 54, Burowli-Bungraghat „ ...	12	2,500,000	
„ 28, Pursa-Shahpur „ ...	28	6,000,000	
„ 33, Rajapati-Sahasighat „ ...	8	1,700,000	
„ 52, Toriya-Sahasighat „ ...	12	2,500,000	
„ 27, Khaira-Ramoola „ ...	6	1,300,000	
„ 39, Bhiti-Pursa „ ...	5	1,100,000	
	106	22,600,000	
(2) Village and minor road improvements ...		5,000,000	
(3) Deepening existing and excavating new tanks (as required).		10,000,000	
Grand total works available		37,600,000	

Note—A very suitable form of relief would be to collect kunkur for road repairs. The kunkur roads in Saran are very bad. If small gangs were collected at the quarries (a gang to each pit), the men could dig, and the women and children wash, screen and stack the kunkur. Probably enough could be collected to put all the pucka roads in Saran in good order for the next four years, and kunkur can be quarried easily in many parts of the district.

SONEPORE THANA SAFE.

Statement III.

Tools required for Major works, under Public Works Department supervision, taking Major works to Minor works as 2 : 1.

Thana.	Average relief labour for *major* works only.	Digging tools.	Baskets.
1	2	3	4
Gopalganj	11,000	1,320	6,600
Mirganj	13,000	1,560	7,800
Siwan	13,000	1,560	7,800
Dharauli	11,000	1,320	6,600
Bassantpur	9,000	1,080	5,400
Chapra	15,000	1,800	9,000
Pursa	9,000	1,080	5,400
Manjhi	6,000	720	3,600
Mushruk	5,000	600	3,000
Sonepur	Nil.	Nil.	Nil.
Total ...	...	11,040	55,200

Note—This is for the *average* monthly labour, but the Collector estimates a maximum of 220,000 as against an average of 189,000, so that we shall have to provide about 50 per cent. more than the above figures, or, say, 17,000 digging tools and 85,000 baskets. Provision will also have to be made for renewing the baskets when required.

C. E. G. & others.—Reg. No. 5673J—250 - 23-1-97.

DARBHANGA DISTRICT.

EXECUTIVE ENGINEER IN GENERAL CHARGE.

MR. (HEAD-QUARTERS DARBHANGA).

(1) Darbhanga Subdivision, head-quarters Darbhanga.

THANA.	Number on relief works (average).	PUBLIC WORKS ESTABLISHMENT.		
		Engineers.	Upper Subordinates.	Lower Subordinates.
1	2	3	4	5
Darbhanga	48,000	Mr. Geneste, Officiating District Engineer, remains in charge of this subdivision.	1	6
Warisnagar	19,000		1	3
	67,000	Nil.	2	9

Note.—Maximum number expected on relief works—166,000.

(2) Bahira Subdivision, head-quarters Bahira.

Roserah	27,000	Assistant Engineer	1	4
Bahira	40,000		1	5
	67,000	1	2	9

Note.—Maximum number expected on relief works—166,000.

(3) Janjharpur Subdivision, head-quarters Janjharpur.

Madhubani	27,000	1 Assistant Engineer	1	3
Phulparas	30,000		1	4
	57,000	1	2	7

Note.—Maximum number expected on relief works—141,000.

(4) Naradh Subdivision, head-quarters Naradh.

Khajauli	24,000	1 Assistant Engineer	1	3
Benapati	27,000		1	4
	51,000	1	2	7

Note.—Maximum number expected on relief works—126,000.

Statement I.

Darbhanga district—Area and population.

Name of Thana.	Area in square miles.	Population.	Distressed area, square miles.	Population of distressed area.
1	2	3	4	5
Darbhanga	428	440,000	All distressed	440,000
Bahira	447	345,000		345,000
Roserah	347	262,000		262,000
Benipati	292	245,000		245,000
Khajauli	323	229,000		229,000
Madhubani	276	244,000		244,000
Phulparas	458	297,000		297,000
Warisnagar	195	17 ,000		171,000
Samastipur	Safe	.....		.....
Dulsingsarai				
	2,766	2,233,000	2,766	2,233,000

Statement II.

Showing numbers to be employed on relief works and quantity of work required.

Thana.	Population of distressed area.	Assumed percentage requiring relief.	Total requiring relief daily.	Deduct non-workers calculated at 20 per cent.	Total workers (round numbers).	Period of relief.	Quantity of work to be provided, calculated at 30 c. feet per head per day, column 6 and column 7.
1	2	3	4	5	6	7	8
Darbhanga ...	440,000	11	48,000	9,600	39,000	From 1st February to 30th September, 207 days, excluding Sundays.	242,000,000
Bahira ...	345,000	11	40,000	8,000	32,000		200,000,000
Roserah ...	262,000	10·5	27,000	5,500	21,500		134,000,000
Benipati ...	245,000	11	27,000	5,500	21,500		134,000,000
Khajauli ...	229,000	11	25,000	5,000	20,000		124,000,000
Madhubani ...	244,000	11	27,000	5,500	21,500		134,000,000
Phulparas ...	297,000	10	30,000	6,000	24,000		149,000,000
Warisnagar ...	171,000	11	19,000	4,000	15,000		93,000,000
Samastipur ...	Doubtful	...	...	...	...	.....	.....
Dulsingsarai ...	Safe	...	...	..	...	.....	.....
Total ...	2,233,000	...	243,000	49,100	195,000	.....	1,210,000,000

Note.—The maximum amount of relief workers in May and June is expected to be 600,000.

DARBHANGA THANA.—AVAILABLE WORKS.

Work requirements 242,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 58, Bahira road ...	10	2,100,000	40 feet of section.
„ „ 1, Rahika „ ...	12	2,500,000	
„ „ 5, Muzaffarpur „ ...	8	1,700,000	
„ „ 35, Somri-Singwara „ ...	3	650,000	
„ „ 72, Kamtaul-Kalinja „ ...	24	5,000,000	
„ „ 256, Darbhanga-Rupauli Ghât road.	9	1,900,800	
„ „ —, Darbhanga Haya Ghât road	6	1,300,000	
„ „ 150, Sihara Gausa Ghât „	6	1,300,000	
Total ...	78	16,450,000	
(2) Village and minor road improvements ...	...	10,000,000	
(3) Roads (minor) not on list	...	5,000,000	
(4) Deepening existing and excavating new tanks (as required).	...	210,000,000	
Grand Total of Works available ...	...	241,450,000	

Note.—The Collector is of opinion that it would be a wrong policy to construct new roads at present. Darbhanga is frequently flooded by the Bagmati and Kumla rivers, and Mr. Carlyle thinks that more road construction would water-log the district even worse than it is. He also considers that tanks are the most suitable form of relief work, and that they are very beneficial to the people. These remarks apply to all other thanas.

BAHIRA THANA.—WORKS AVAILABLE.

Work requirements 200,000,000 cubic feet.

(1) Raising and improving existing roads—			
No. 37, Darbhanga to Usti	22	4,600,000	
„ 25, Bahira to Bahiri	12	2,500,000	
„ 22, Bahira to Sukri	9	1,900,000	
	43	9,000,000	
(2) Minor roads not on list	...	20,000,000	
(3) Village roads	...	10,000,000	
(4) Deepening existing and excavating new tanks (as required)	...	161,000,000	
Grand Total of work available ...	...	200,000,000	

ROSERAH THANA—AVAILABLE WORKS.

Work requirements 134,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads —			c
Nos. 81 and 73, Hathi to Hirni Mouzi Road	20	4,200,000	40ft. of section.
No. 60, Hathi-Roserah Road ...	20	4,200,000	
„ 164, Hirni-Singhia „	6	1,300,000	
„ 73, Hathi-Mangalgurh Road ...	12	2,500,000	
„ 194, Singhia-Baheri	12	2,500,000	
Total ...	70	14,700,000	
(2) Raising and improving minor roads not on list		15,000,000	
(3) Village roads		5,000,000	
(4) Deepening existing and excavating new tanks (as required)		100,000,000	
		134,700,000	

BENIPATI THANA WORKS.

Work requirements 134,000,000.

(1) Raising and improving existing roads—			
No. 121, Tirmohun-Saha road ...	6	1,300,000	40 feet section.
„ 57, Kamtaul-Benipati „ ..	1	1,750,000	Widening high bank.
„ 77, Benipati-Balwa „ ...	10½	2,200,000	
„ 85, Ekri-Madwapur „ ...	5	1,100,000	
„ 243, Nawada-Tengraghat road ...	5	1,100,000	
„ 71, Benipati-Hurlaki „ ...	15	3,200,000	
„ 93, Umgaon-Bansapati „ ...	2	400,000	
„ 94, Bansapati-Benipati „ ...	6	1,300,000	
„ 62, Madhubani-Benipati „ ..	9	1,900,000	
„ 248, Urai-Kukuria road ...	7	1,500,000	
	66½	15,750,000	
(2) Improvements to minor roads	...	250,000	
(3) Village roads	...	250,000	
(4) Deepening existing and excavating new tanks (as required).	...	113,000,000	
Grand total of works available ...	...	133,750,000	

KHAJAULI THANA—AVAILABLE WORKS.

Work requirements 124,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 21, Rahika-Jainagar road ...	9	4,500,000	To be raised 3 feet.
„ 79, Madhubani-Kutwahi „ ...	3	650,000	40 feet section.
„ 76, Mirzapur-Jainagar „ ...	10	2,100,000	Ditto.
„ 54, Madhubani-Khajauli „ ...	6	1,300,000	Ditto.
„ 23, Dharampur-Benipati „ ...	6	1,300,000	Ditto.
„ 216, Mirzapur-Bhakwa „ ...	4	850,000	Ditto.
„ 55, Khajauli-Ladani „ ...	14	3,000,000	Ditto.
„ 54, Madhubani-Khajauli „ ...	4	850,000	Ditto.
„ 53, Mirzapur-Barhi „ ...	3½	750,000	Ditto.
„ 70, Barhi-Laukaha „ ...	7	1,500,000	Ditto.
Total ...	66½	16,750,000	
(2) Raising and improving minor and village roads.	...	5,000,000	
(3) Sakri-Jainagar Railway	12	5,000,000	80 feet of section.
(4) Tanks—deepening existing and excavating (as required).	...	97,000,000	
Grand Total of work available ...	...	133,750,000	

MADHUBANI THANA—WORKS AVAILABLE.

Work requirements 134,000,000 cubic feet.

(1) Raising and improving existing roads—			
No. 107, Rayyam-Madhubani road ...	5	1,100,000	40 ft. of section.
„ 108, Rayyam-Pandaul „ ...	5	1,100,000	
„ 74, Bharwara-Sursa „ ..	11	2,300,000	
„ 56, Madhubani-Rampati „ ...	4½	1,000,000	
„ 75, Rampati-Janjharpur „ ...	10½	2,200,000	
„ 54, Madhubani-Khajauli „	4	850,000	
„ 216, Bakwá-Mirzapur „ ...	5	1,100,000	
„ 79, Madhubani-Kilwahi „ ...	4	850,000	
„ 113, Mirzapur-Motipur „ ...	8	1,700,000	
„ 106, Mirzapur-Kilwahi „ ...	7	1,500,000	
„ 7, Darbhanga-Naraya „ ...	16	3,400,000	
„ 102, Madhubani-Mirzapur „ ...	6½	1,400,000	
„ 53, Mirzapur-Barhi „ ...	5	1,100,000	
	90½	19,600,000	
(2) Improving minor roads	...	5,000,000	
(3) Improving village roads	...	2,500,000	
(4) Sakri-Jainagar Railway	16	6,800,000	80 ft. section.
(5) Deepening existing and excavating new tanks (as required).	...	100,000,000	
Grand total of works available ...	...	133,900,000	

PHOOLPARAS THANA—AVAILABLE WORKS.

Work requirements 149,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 7, Pipra Ghât to Naraya road ...	13	2,750,000	40 feet of section.
„ 17, Naraya to Tiljuga „ ...	6	1,300,000	Ditto.
„ 83, Naraya to Andramat „ ...	16	6,800,000	80 feet of section ; road bad.
„ 84, Naraya-Kalapati „ ...	6½	1,400,000	40 feet of section.
„ 204, Kutaima-Siswa „ ...	7	1,500,000	Ditto.
„ 15, Jitki-Nirmali „ ...	1½	300,000	Ditto.
„ 69, Naraya-Laukahi „ ...	7½	1,600,000	Ditto.
„ 70, Burhi-Laukahi „ ...	9	1,900,000	Ditto.
„ 52 Tamuria feeder „ ...	8½	1,800,000	Ditto.
„ 19 Sakri-Gopalpur ghât „ ...	16	3,400,000	Ditto.
	90½	22,700,000	
(2) Improving village roads	...	5,000,000	
(3) Improving minor roads	...	5,000,000	
(4) Deepening existing and excavation of new tanks (as required).	...	116,000,000	
Grand total available for relief works ...	...	148,700,000	

WARISNAGAR THANA—AVAILABLE WORKS.

Work requirements 93,000,000 cubic feet.

(1) Raising and improving existing roads— Under this head we can carry out practically nothing, as all the roads are in good order and will be repaired by the 1st February	Nil.	Nil.	
(2) *New roads*— To replace the road now being cut away by the Bagmati river between Pusa and Bilaspur	4	11,500,000	The road to be embanked 10 feet.
(3) Minor road improvements	...	8,000,000	
(4) Village do. do.	...	2,500,000	
(5) Deepening existing and excavating new tanks (as required)	...	71,000,000	
Grand Total of Works Available ...	...	93,000,000	

Note.—The Samastipur and Dulsingsarai Thanas may be considered safe. If any distress arises, the Katihar railway extension should provide for all needing work.

STATEMENT III.

Tools required for MAJOR *Works supervised by the Public Works Department, taking Major Works to Minor Works as 2 : 1*

THANA.	Average of distressed population on Public Works Department Major Works only.	Digging tools.	BASKETS.
1	2	3	4
Darbhanga ...	32,000	3,840	19,200
Bahirah	27,000	3,240	16,200
Roserah	18,000	2,160	10,800
Benipati	18,000	2,160	10,800
Khajauli	16,000	1,920	9,600
Madhubani ...	18,000	2,160	10,800
Phulparas ...	20,000	2,400	12,000
Warisnagar ...	13,000	1,560	7,800
Samastipur ...	Nil	Nil	Nil
Dalsingsarai ...	Nil	Nil	Nil
Total ...	.....	19,440	97,200

NOTE.—This may be taken in round numbers as 20,000 digging tools and 100,000 baskets. For the two months (May and June), when the maximum rush may be expected, the Collector estimates that the numbers will be about two and a half times those given above. We shall therefore require at this period 50,000 digging tools and 2½ lakhs of baskets for Public Works Department works only, and provision must be made for renewing the baskets from time to time.

C. E. G.—Reg. No. 6853C—250—23-1-97.

MUZAFFARPUR DISTRICT.

EXECUTIVE ENGINEER IN GENERAL CHARGE, MR. G. W. DISNEY.

(*1*) *Sitamarhi Subdivision, head-quarters Sitamarhi.*

Thana.	Number on relief works.	PUBLIC WORKS ESTABLISHMENT.		
		Engineers.	Upper subordinates.	Lower subordinates.
1	2	3	4	5
Sitamarhi	15,000	.....	.....	4
Pupri	11,000	1 Assistant Engineer.	2	3
Shiuhar	9,000	.....	.....	2
Bagmati scheme	.. ...	.....	1	2
	35,000	1	3	11

Maximum expected on relief works, 83,000.

(*2*) *Muzaffarpur Subdivision, head-quarters Muzaffarpur.*

Thana.	Number on relief works.	PUBLIC WORKS ESTABLISHMENT.		
		Engineer.	Upper subordinates.	Lower subordinates
1	2	3	4	5
Belsand	9,500	.....	... ..	2
Muzaffarpur	20,000	1 Assistant Engineer.	2	5
Paru	15,000	.....	.....	4
	44,500	1	2	11

Maximum number expected on relief works, 105,000.

Katra	10,500	.....	.....	2
Mahua	9,400	1 Assistant Engineer.	2	2
Lalgunj	6,400	.....	.....	2
Hajipur (Feeder Roads) ...	Drafted labour.	.....	1	3
	26,300	1	3	9

Maximum expected on relief works, 62,000.

STATEMENT I.

MUZAFFARPUR DISTRICT.

Area and population of thanas.

Name of thana.	Area.	Population.	Distressed area.	Population of distressed area.
1	2	3	4	5
	Square miles.		Square miles.	
Sitamarhi	357	318,000	761	693,000
Pupri	203	182,000		
Shiuhar	249	232,000		
Belsand	205	191,000		
Muzaffarpur	572	372,000	620	552,000
Paru	420	310,000		
Katra	228	191,000	202	167,000
Mahua	314	295,000	157	148,000
Lalganj	171	154,000	111	100,000
Hajipur (safe)	Nil	Nil	Nil	Nil
Total ...	2,719	2,245,000	1,851	1,660,000

STATEMENT II.

Showing numbers to be employed on relief works and quantity of work required.

THANA.	Population of distressed area.	Assumed per cent. requiring relief.	Total requiring relief daily.	District non-workers calculated at 20 per cent.	Total workers, round numbers.	Period of relief.	Quantity of work to be provided calculated at 30 cubic feet per day per head, column 6 × column 7.
1	2	3	4	5	6	7	8
			Average				
Sitamarhi	238,000	15 (max.)	15,250	3,050	12,000	From 1st February to 30th September, 207 days excluding Sundays.	75,000,000
Pupri	173,000	15 ,,	11,125	2,225	9,000		56,000,000
Shiuhar	138,000	15 ,,	8,927	1,791	7,000		45,000,000
Belsand	150,000	15 ,,	9,500	1,900	8,000		49,000,000
Muzaffarpur	308,000	15 ,,	19,800	3,960	16,000		99,000,000
Paru	240,000	15 ,,	15,000	3,000	12,000		75,000,000
Katra	167,000	15 ,,	10,500	2,100	8,500		54,000,000
Mahua	148,000	15 ,,	9,375	1,900	7,500		48,000,000
Lalganj	100,000	15 ,,	6,400	1,300	5,000		31,000,000
Hajipur	Safe	.....	.....	.....	.....		.....
Total ...	1,662,000	.....	105,907	21,226	85,000		.....

NOTE.—The maximum percentage of 15 per cent. is calculated on the population of the affected areas only, *vide* Mr. Hare' Famine Report, No. 1240R., dated the 2nd December 1897.

Sitamarhi Thana.

Work requirements 75,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 29, Dumraghat road ...	15	3,200,000	Raising road and filling up side tracks are taken as representing a section of 40 feet per foot run of road.
,, ,, 26, Maniari ,, ...	8	1,700,000	
,, ,, 32, Sonbursa ,, ...	19½	4,100,000	
,, ,, 31, Majorgunj ,, ...	8	1,700,000	
,, ,, 1, Korliaghat ,, ...	8	1,700,000	
,, ,, 25, Shiuhar ,, ...	8	1,700,000	
,, ,, 34, Bela ,, ...	14	3,000,000	
,, ,, 24, Sitamarhi ,, ...	5	1,060,000	
,, ,, 35, Parihar ,, ...	6	1,250,000	
,, ,, 3, Batwaha ,, ...	10	2,100,000	
	101½	21,510,000	
(2) New roads—			
(1) From Sonbursa road to Dyne Chapra.	7	2,500,000	It is assumed that the section of the road, including side track, will give 70 feet per foot run.
(2) Parihar to Bhutahi ...	8	3,000,000	
	15	5,500,000	
(3) Irrigation works—			
(1) Second reach of Bagmati Canal.	3½	12,000,000	
(2) Irrigation channel from Pukri to Bhutahi.	6	2,750,000	
(4) Village and minor roads not on District Board list.	...	5,000,000	
(5) Tanks, construction and deepening of (as required).	...	30,000,000	
Grand Total of works available ..	...	76,760,000	

Pupri thana. Available works.

Work requirements, 56,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 82, Charaut road ...	8	1,700,000	Raising road and filling up side tracks are taken as representing a section of 40 feet per foot run of road.
,, ,, 24, Sitamarhi ,, ..	14	3,000,000	
,, ,, 23, Sursand ,, ...	26	5,500,000	
,, ,, 36, Baligarh ,, ...	3½	740,000	
,, ,, 33, Bhatnaha ,, ...	5	1,060,000	
,, ,, 38, Jalaye ,, ...	6	1,300,000	
	62½	13,300,000	
(2) New roads—			
(1) Bihta to Jadupatti ...	9	3,300,000	70 c. ft. of section.
(2) Bongong to Runi Syedpore ...	12	4,400,000	
(3) ,, to Kuma ..	10	3,700,000	
(4) Sursand to Charaut ...	11	4,050,000	
	42	15,450,000	
(3) Irrigation work—			
(1) Channel from Maha river to bed of Paraki river.	6	3,250,000	Bed 10 feet, depth 5 feet, slopes 2 to 1.
Minor and village roads ...	.....	5,000,000	
Tanks—			
Deepening and constructing (as required).	.....	19,000,000	
Grand total of works available ...	.....	56,000,000	

Shiuhar thana. Available works.

Work requirements, 45,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 26, Maniari road ...	3	650,000	40 feet of section.
,, ,, 27, Bairagnia ,, ...	4	850.000	
,, ,, 25, Shiuhar ,, ...	7	1,500,000	
,, ,, 31, Majorgunj ,, ...	14	3,000,000	
,, ,, 28, Lalghur ,, ...	8	1,700,000	
	36	7,700,000	
(2) New roads—			
(1) Shiuhar to Madhuban ...	8	3,000,000	70 feet of section.
(2) To Bengahi ghát ...	2	730,000	
	10	3 730,000	
(3, Irrigation works—			
(1) Upper reach of Bagmati canal	6	26,000,000	
(2) Protective bund for sluices ...	... ..	1,250,000	
(3) Improving village and minor roads.	......	2,000,000	
(4) Deepening existing and constructing new tanks (as required).	.....	5,000,000	
Grand total of works available ...	.....	45,680,000	

Belsand thana. Available Works.

Work requirements ... 49,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 29 Dumra ghat road	12	2,500,000	40 c. ft. of section.
,, ,, 1 Korliaghat ,,	9	1,900.000	
,, ,, 6 Baligurh ,,	3	650,000	
,, ,, 30 Belsand ,,	7	1,500,000	
,, ,, 37 Runi Syedpur ,,	8	1,700,000	
,, ,, 81 Ourai ,,	3¼	750,000	
	42}	9,000,000	
(2) New roads—			
(1) Belsand to Shiuhar ...	12	4,400 000	70 c. ft. of section.
(2) Belsand to Lalgurh ...	12	4,400,000	
	24	8,800,000	
(3) Improving village and minor roads.	...	5,000,000	
(4) Deepening existing and constructing new tanks (as required).	...	26,000,000	
Grand total of works available ...	...	48,800,000	

Muzaffarpur Thana. Available Works.

Work requirements ... 99,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 1 Korliaghat road ...	18	3,800,000	40 c. ft. of section.
,, ,, 2 Darbhanga ,, ...	10	2,100,000	
,, ,, 3 Pusa ,, ...	15	3,200,000	
,, ,, 4 Dalsingh Sarai,, ...	20	4,200,000	
,, ,, 5 Shahpur ,, ...	14	3,000,000	
,, ,, 6 Hajipur ,, ...	12	2,500,000	
,, ,, 8 Deoria ,, ...	12	2,500,000	
,, ,, 9 Sahibganj ,, ..	15	3,200,000	
,, ,, 14 Maniarpur ,, ...	16	3,400,000	
,, ,, 21 Bajighat ,, ...	11½	2,400,000	
,, ,, 22 Asharghat ,, ...	15	3,200,000	
,, ,, 39 Rajkhund ,, ...	10	2,100,000	
,, ,, 50 Tajpurghat ,, ...	16½	3,500,000	
,, ,, 51 Rasalpurghat ,, ...	2	400,000	
,, ,, 52 Bawal bazar ,, ..	4½	900,000	
,, ,, 47 Ladaura ,, ...	6	1,300,000	
,, ,, 43 Mujhaulia ,, ...	5	1,100,000	
,, ,, 53 Reghai ,, ...	9	1,900,000	
,, ,, 45 Mia Chapra ,, ...	4	850,000	
,, ,, 17 Mahua ,, ...	7	1,500,000	
,, ,, 44 Pilkighat ,, ...	9¼	2,000,000	
,, ,, 40 Bhasraghat ,, ...	16	3,400,000	
,, ,, 48 Bharampura ,, ..	1½	300,000	
,, ,, 49 Sirua ,, ...	6¾	1,400,000	
,, ,, 54 Kanti ,, ...	5	1,100,000	
,, ,, 59 Chajau ,, ...	7	1,500,000	
,, ,, 71 Arizpur ,, ...	6	1,300,000	
,, ,, 76 Pudmoul ,, ...	10½	2,200,000	
,, ,, 77 Narauli ,, ...	2	400,000	
,, ,, 79 Tipri Ghat ,, ...	11	2,300,000	
,, ,, 78 Sakhowara ,, ..	12	2,500,000	
,, ,, 46 Kurbani ,, ...	6½	1,400,000	
	315¼	66,850,000	
(2) Improving minor and village roads	.....	7,500,000	
(3) Drainage work—			
(1) Cut from near Collector's house across loop of Bur Ganduk river	1,000 × 84 × 16	1,500,000	Section 1,312 feet, bed 50 feet, depth 16 feet, slopes 2 to 1.
(4) Deepening existing and excavating new tanks (as required) ...	.....	24,000,000	
Grand Total of works available ...	.....	98,850,000	

Note—There are several new roads which could be taken up if tanks are not desired.

Paru Thana. Works available.

Work requirements, 75,000,000 cubic feet.

Class of work.	Length in miles	Quantity in cubic feet.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 7 Rewaghat Road ...	15	3,200,000	40 c. ft. of section per foot run.
,, ,, 8 Deoria ,, ...	16	3,400,000	
,, ,, 9 Sahibganj ,, ...	19¾	4,200,000	
,, ,, 12 Jaintpur ,, ..	21	4,400,000	
,, ,, 10 Bethia ,, ...	27½	5,700,000	
,, ,, 11 Teliaserai ,, ..	3	650,000	
,, ,, 56 Paru ,, ...	14	3,000,000	
,, ,, 60 Pokhrera ,, ...	5	2,100,000	
,, ,, 57 Lalu Chapra ,, ...	3½	750,000	
,, ,, 54 Kanti ,, ...	5	1,100,000	
,, ,, 55 Gaura ,, ...	10¾	2,200,000	
,, ,, 73 Ladia ,, ...	11	2,300,000	
,, ,, 74 Somgurh ,,	3	650,000	
,, ,, 75 Burkagaon ,, ...	13	2,750,000	
,, ,, 59 Chajan ,, ...	8	1,700,000	
,, ,, 58 Sohagpur ,, ...	10¾	2,200,000	
,, ,, 72 Karamwari ,, ...	7½	1,600,000	
,, ,, 61 Sainghat ,, ...	2¼	500,000	
	196	42,400,000	
(2) New roads—			
(1) From Marabpur to Mahwal ...	8	3,000,000	70 c. ft. of section.
(2) ,, Manakpore to Babanpore pottia	5	1,850,000	
	13	4,850,000	
(3) Drainage work—			
(1) Cutting a channel from the Baya river to the Baya sluice	4 × 5,280′ × 40′ × 10′	8,500,000	Bed 20 feet, depth 10 feet, slopes 2 to 1.
(4) Improving village and minor roads	.....	5,000,000	
(5) Deepening existing and excavating new tanks.	.....	15,000,000	
Grand total of works available ...	.. ...	75,750,000	

Katreh thana— Works available.

Work requirements ... 54,000,000 c. ft.

Class of work.	Length in miles.	Quantity in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 2, Darbhanga Road ...	10¾	2,250,000	40 c. ft. of section.
,, ,, 39, Rajkhund ,, ...	6¼	1,350,000	
,, ,, 40, Bhasraghat ,, ...	8¼	1,750,000	
,, ,, 38, Jalaye ,, ...	3	650,000	
,, ,, 41, Keotsa ,, ...	17	3,600,000	
,, ,, 42, Singwara ,, ...	4	850,000	
,, ,, 81, Ourai ...	2	400,000	
	51¼	10,850,000	
(2) New roads—			
(1) Junar Road	5	1,850,000	70 c. ft. of section.
(2) Semri to Burnaul ...	6	2,200,000	
(3) Kutreh to Sudaspore ...	8	3,000,000	
(4) Guzrana to Jaran ...	6	2,200,000	
(5) Guzrana to Duli ...	4	1,500,000	
(6) Gargha to Husua ...	6	2,200,000	
(7) Nagwara to Nanpore ...	13	4,800,000	
	48	17,750,000	
(3) Minor and village road improvements.	.....	5,000,000	
(4) Deepening existing and excavating new tanks (as required)	.....	20,000,000	
Grand total of works available ...	.....	53,600,000	

Mahua Thana—Works Available.

Work requirements ... 48,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
Road No. 5, Shahpur road ...	5	1,100,000	40 c. ft. section.
,, ,, 62, Bhataulia ,, ...	8	1,700,000	
,, ,, 17, Mahua ,, ...	25	5,300,000	
,, ,, 20, Mahaddinnagar road.	16	3,400,000	
,, ,, 18, Hazrat-Jaudaha road.	16	3,400,000	
,, ,, 68, Serai road ...	10	2,100,000	
,, ,, 65, Tajpur ,, ...	12	2,500,000	
,, ,, 64, Chitwara ,, ...	10	2,100,000	
,, ,, 63, Mastafapur ,, ...	6	1,300,000	
,, ,, 67, Bhagwanpur ,, ...	6	1,300,000	
,, ,, 66, Imatpur ,, ...	6	1,300,000	
Total ...	120	25,500,000	
(2) New roads—			
(1) North section of Chumrehra feeder road to Hajipur Railway.	4	3,000,000	Estimate prepared.
(2) Feeder roads to railway not yet surveyed, say.	.....	3,000,000	
Total ...	.....	6,000,000	
(3) Improvements to village and minor roads.	.....	2,500,000	
(4) Deepening existing and excavating new tanks (as required.)	.....	14,000,000	
Grand total of works available ...	.....	48,000,000	

Note—Part of the labour in this thana could be drafted to the Hajipur Thana, which is safe from famine.

Lalganj Thana—Works Available.

Work requirements ... 31,000,000 cubic feet.

Class of work.	Length in miles.	Quantity of work in c. ft.	Remarks.
1	2	3	4
(1) Raising and improving existing roads—			
No. 68, Serai road ...	9	1,900,000	40 c. ft. of section.
„ 16, Lalganj „ ...	14¼	3,100,000	
„ 6, Hajipur „ ...	5	1,100,000	
„ 10, Bettiah „ ...	9	1,900,000	
„ 12, Jaintpur „ ...	7	1,500,000	
„ 15, Jutkaulighat „ ...	8¾	1,800,000	
„ 66, Emadpur „ ..	9	1,900,000	
„ 61, Sanighat „ ..	9½	2,000,000	
„ 69, Totaha „ ...	6¼	1,350,000	
Total ...	77¾	16,550,000	
(2) New roads— (*a*) Feeder road from Sirsa to Bhagwanpur station.	5	2,500,000	90 feet of section.
(3) Irrigation— (*a*) *Pyne* from Musrauli to Chawa	4 × 5280′ × 100′	2,000,000	Bed 10 feet, depth 5 feet, slopes 2 to 1.
(4) Improving minor and village roads	.....	2,500,000	
(5) Deepening existing and excavating new tanks.	.....	7,500,000	
Grand total works available ...	.....	31,050,000	

Hajipur thana—Safe.

Note.—A railway extension, and some feeder roads to it, can be carried out in this thana, if it prove necessary to draft labour.